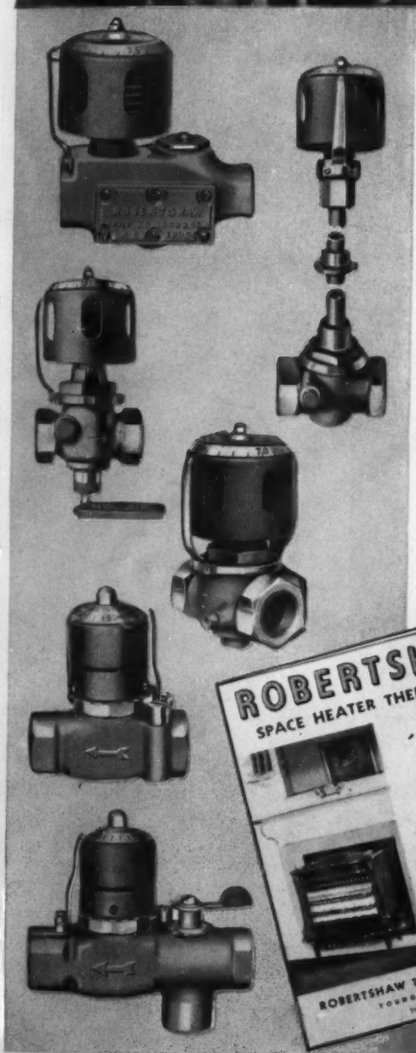
GAS

ENGINEERING • UTILIZATION • LOAD-BUILDING • MANAGEMENT



Automatic sectional house heating with efficient, modern appliances of the direct application type with thermostatic control open up a great mass market to house heating by gas. They make such heating practical, inexpensive. They solve the problem of the many homes in which central heating plants cannot be installed. They are rapidly expanding the sales of both fuels and appliances.

Robertshaw provides a complete line of tested space heater thermostats for circulators, radiant heaters, floor furnaces, unit heaters, warm air units, kitchen heaters and gas steam radiators.

Write for

ROBERTSHAW SPACE HEATER THERMOSTAT BULLETIN

ROBERTSHAW THERMOSTAT COMPANY
YOUNGWOOD, PA.

SEPTEMBER 1937 • • 25 CENTS

Here's the EMCO application

FOR A MEASURING JOB IN YOUR DISTRIBUTION SYSTEM

REFERENCES	Thousands of satisfied customers among the Utilities and all industry.
EXPERIENCE	Fifty years of building better meters.
EDUCATION	A thorough groundwork in meter fundamentals, plus post graduate work in refinements.
HEALTH	Inherently rugged—built to do the toughest measuring job.
APPEARANCE	Excellent-clean lines, trim finish, no excess bulk.
ADAPTABILITY	Among the complete line of EMCO Tin, Iron, Pressed Steel and Orifice Meters can be found the one best suited for any particular job.
ACCURACY	You can depend on EMCO Meters—they are built to measure accurately, first, last, always.
REMUNERATION	EMCO Meters will work hard and long for surprisingly little. Low maintenance and upkeep costs are due to proper design and superior manufacturing facilities.

When you consider the different groups of employees in your distribution system, you can't help considering the mechanical ones—the gas meters you employ—as one of the most important of all. They, and they alone, determine the revenue upon which your profits depend. Quietly and unobtrusively, twenty-four hours every day, these mechanical employees go about their task of recording the gas service delivered by you. Without them there would be no equitable basis for apportioning charges fairly among your consumers. Truly, they are your silent representatives on the premises of your customers.

When you buy meters, then, why not buy them on the same basis as you hire your employees? Here's the EMCO application.

PITTSBURGH EQUITABLE METER CO.

MERCO NORDSTROM VALVE CO.

MAIN OFFICES PITTSBURGH, PA.

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COLUMBIA · KANSAS CITY · CHICAGO · PHILADELPHIA · ATLANTA · OAKLAND

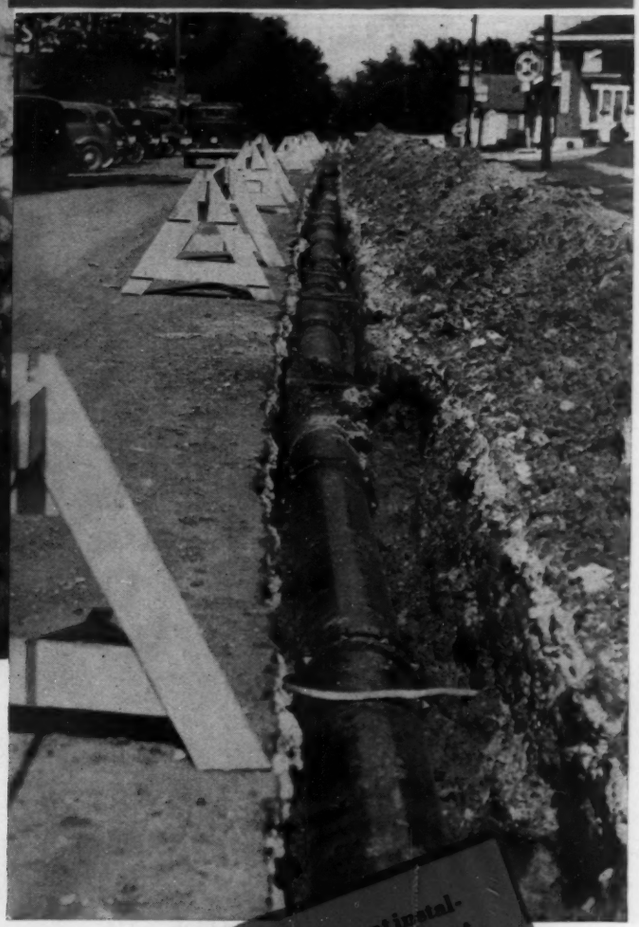
THEN . . .

The same long-lived material

100 YEARS AGO—A cast iron gas main which has been in continuous service in Philadelphia for more than a century.

and NOW

but with modern mechanical joints



TODAY—A recent installation of mechanical joint cast iron pipe for gas distribution, tested under 50 pounds pressure.

The remarkably low-cost public service rendered by the gas industry is to a considerable extent made possible by the long life and economy of cast iron pipe. Likewise the progress in gas distribution has been paralleled by improvements in cast iron pipe, notably modern bottle-tight mechanical joints for modern working pressures. They are available with pipe in diameters from 1¼ to 84 inches.

CAST IRON PIPE

THE STANDARD MATERIAL FOR UNDERGROUND MAINS

The Cast Iron Pipe Research Ass'n, Thos. F. Wolfe Research Engr., 1013 Peoples Gas Bldg., Chicago

ADVERTISERS' INDEX

The American Brass Co.	10
American Gas Products Corp.	—
American Meter Co.	14
American Recording Chart Co.	68
American Stove Co.	47
The Barber Gas Burner Co.	57
Barber-Greene	—
The Barrett Co.	—
H. R. Basford Co.	80
Blaw-Knox Co.	75
G. S. Blodgett Co.	34
Bryant Heater Co.	—
The Bristol Co.	8
The Cast Iron Pipe Research Ass'n.	1
The Chaplin-Fulton Manufacturing Co.	69
Clark Bros. Co.	4, 5
Clark Hotel	—
The Cleveland Trencher Co.	—
Condensation Engineering Corp.	79
Connelly Iron Sponge & Governor Co.	68
The Cooper-Bessemer Corp.	7
Crane Co.	76
Cribben & Sexton Co.	12
Dearborn Chemical Co.	80
Detroit-Michigan Stove Co.	—
Domestic Manufacturing Co.	74
S. R. Dresser Manufacturing Co.	31, 33
Electrogas Furnace & Mfg. Co.	78
Ensign Carburetor Co., Ltd.	51
Fluor Corporation, Ltd.	11
Fraser Furnace Co.	80
General Controls	56
General Gas Light Company	43
James Graham Manufacturing Co.	39
Greenlee Tool Co.	81
Handbook, Butane-Propane Gases, 2nd Edition and Supplement	72
H-M Thermo Control Co.	60
Hotel Sherman	76
Johns-Manville	41
Johnson Gas Appliance Co.	77
Kerotest Manufacturing Co.	72
Kitson Co.	62
Lycoming Manufacturing Co.	—
Merco Nordstrom Valve Co.	49, 50
Milwaukee Gas Specialty Co.	82
Minneapolis-Honeywell Regulator Co.	6
L. J. Mueller Furnace Co.	60
Mueller Co.	3rd Cover
The National Supply Co.	9
National Tube Co.	—
Natural Gas Equipment, Inc.	61
The New Deal Specialty Co.	82
Pacific Coast Gas Association, Inc.	63
Pacific Gas and Electric Co.	65
Pacific Gas Radiator Co.	75
Pacific Meter Works	14
Parkhill-Wade, Inc.	—
Payne Furnace & Supply Co.	58, 59
Pittsburgh Equitable Meter Co.	2nd Cover
Porcelain Enamel Institute	37
Pressed Steel Tank Co.	73
Reliance Regulator Corp.	66
Reynolds Gas Regulator Co.	79
Robertshaw Thermostat Co.	Front Cover
George D. Roper Corp.	44
Ruud Mfg. Co.	—
Safety Gas Main Stopper Co.	78
Servel, Inc., Electrolux Sales Div.	—
M. B. Skinner Co.	—
Spencer Thermostat Co.	73
The Sprague Meter Co.	4th Cover
Stevens Hotel	64
United States Pipe & Foundry Co.	3
United States Steel Corp.	—
Ward Heater Co., Ltd.	54, 55
Waukesha Motor Co.	74
Webster Engineering Co.	—
Welsbach Co.	81
Williams-Wallace Co.	62
Worthington Pump & Machinery Corp.	—

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Contents for September, 1937

GUEST EDITORIAL: Roman Riders . . . . *By L. M. Klauber* 13

"Three Men in a Boat . . . " . . . . . *By A. F. Rice* 16

Kitchen Planning Must Be Sold! . . . . *By Dale Remington* 22

Go West—Gas Man—Go West . . . . . *By E. A. Munyan* 23

Selling Gas and Gas Ovens to Bakeries in Syracuse *By W. C. Agnew* 35

ABSTRACTS BY THE STAFF:

Yield of Tar in the Manufacture of High B.t.u. Oil Gas 25
By C. Eldon White

Increasing the Efficiencies of Gas Power Boilers 27
By W. W. German and Worden Pope

Gas Lighting—Commercial, Industrial, and Flood *By C. A. Thorp* 28

Calibration of Gas Range Oven Thermostats . *By E. H. Mohr* 29

The Utility Laboratory Aids the Salesman . . *By R. V. Davis* 32

MEASUREMENT AND CONTROL 67

The Double Orifice Meter . . . . *By B. G. Williams* 67

BUTANE-PROPANE NEWS 71

Shell Corp. Promotes 100 Shellane Cooking Schools 71

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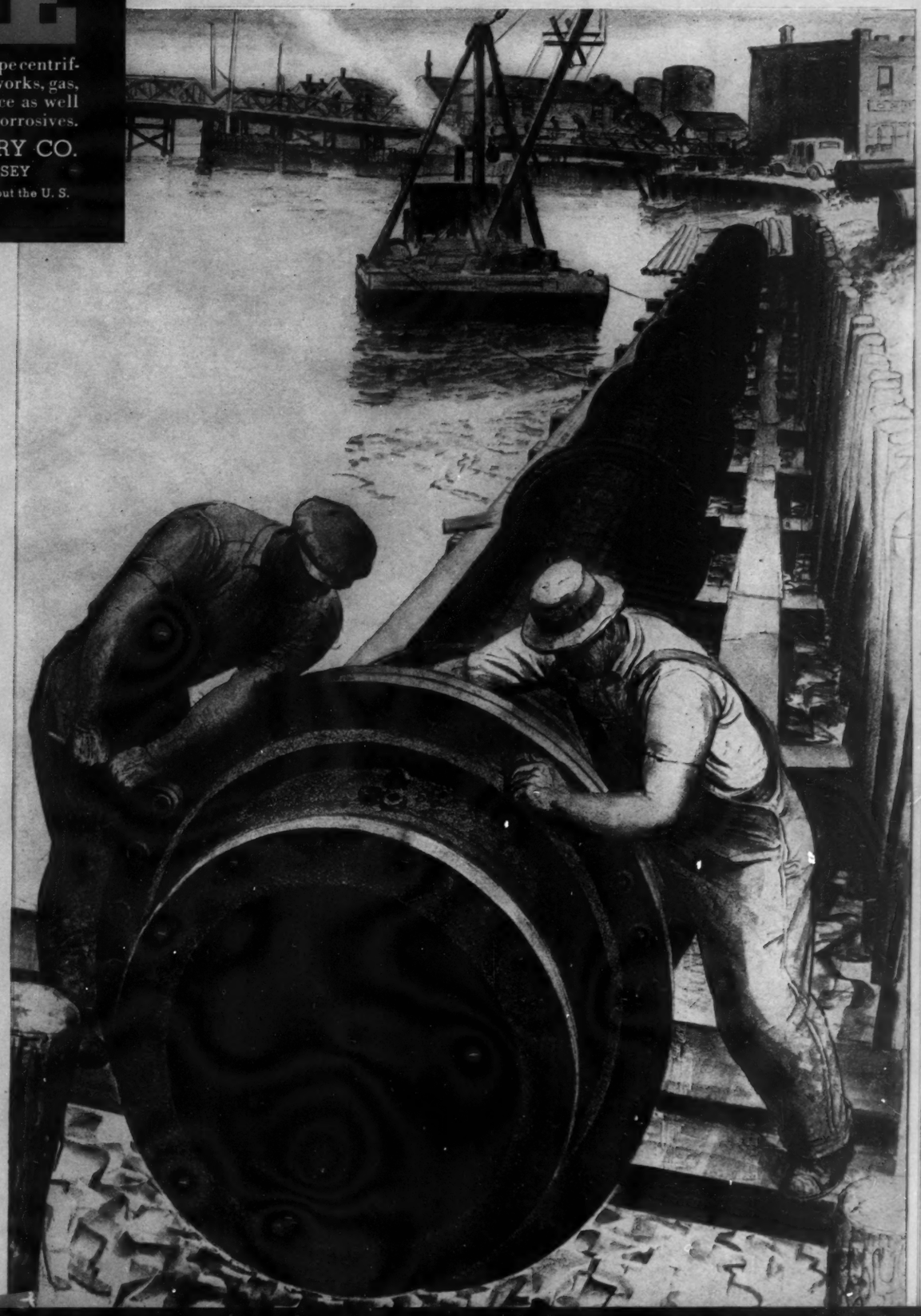
WHY is cast iron pipe specified with confidence to meet conditions under which another pipe material would be a gamble? Every engineer knows the answer! Effective resistance to corrosion—ample margins of safety in strengths to meet stresses—impermeability and permanently tight joints. We furnish cast iron pipe in all diameters from 2-inch to 84-inch with all types of joints, and standard or special fittings as required. Our experience in pipe design is extensive. Our plant facilities, resourceful. And we can ship from any one of 15 plants and storage yards.



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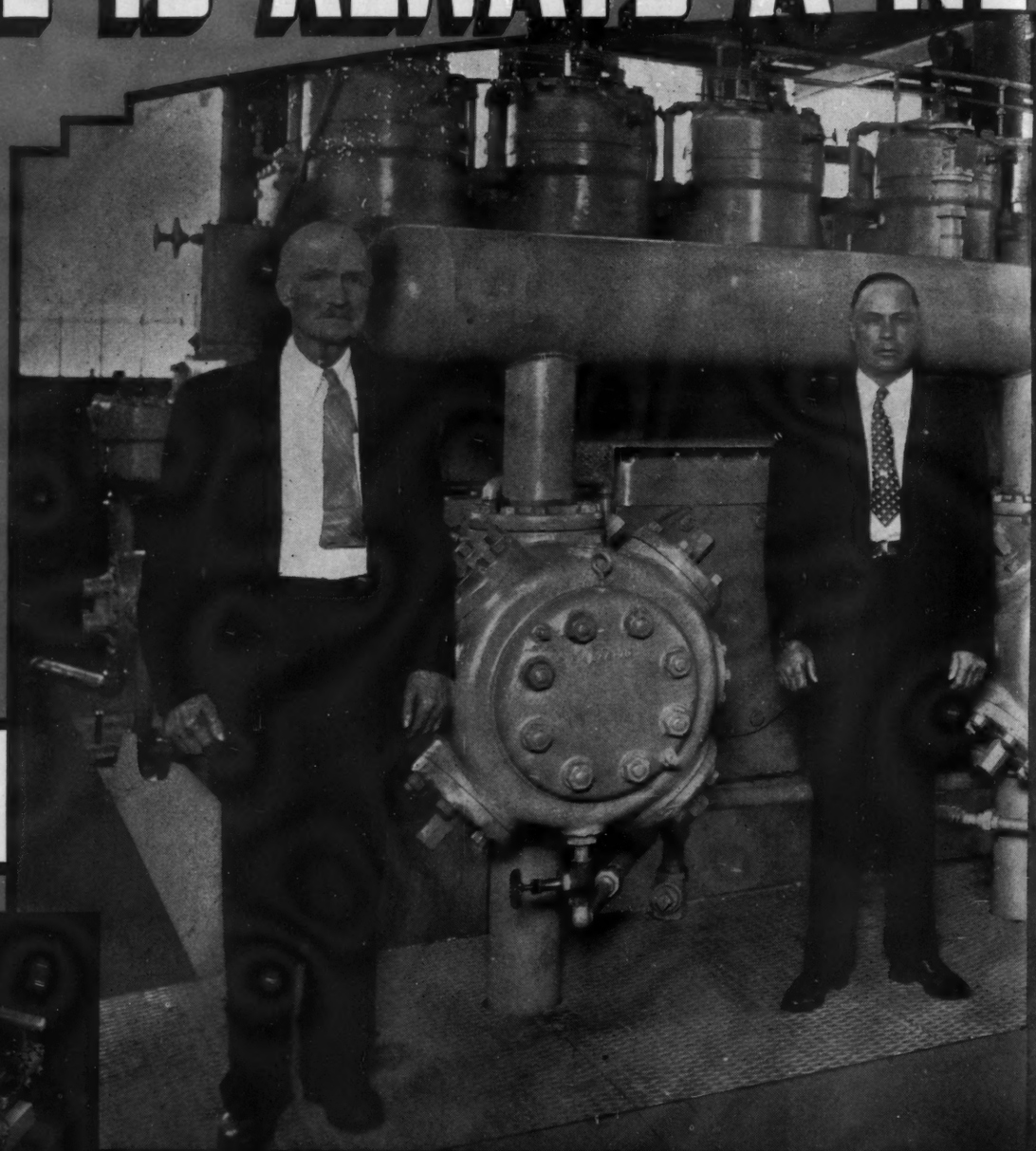
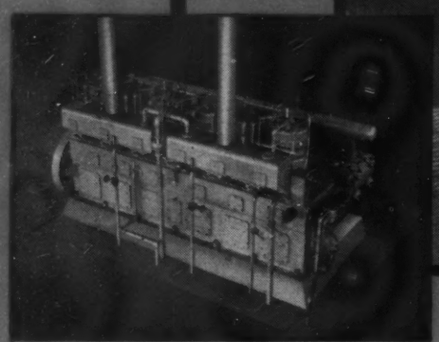
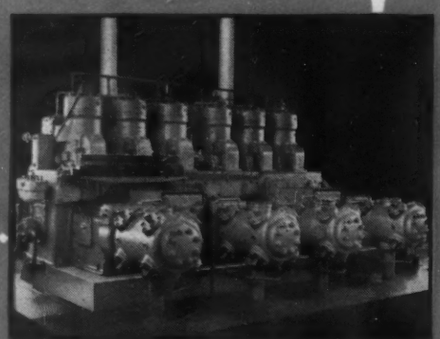


4 generations representing 116 years of service in the CLARK shops. Left to right, they are Frank DeLong, 61 years of service; John



6-Cylinder Installation set up for full-load test on factory test block



New CLARK Super-2-Cycle 6-Cylinder Angle Compressor, 600 H. P.

4 GENERATIONS OF CLARK —and a *Brand New*

The age and stability of the CLARK business are suggested by this unusual photograph—a family that has been with CLARK for 4 generations. Great grandfather DeLong started with CLARK 61 years ago. Today 4 generations of his family are employed in the CLARK shops.

CLARK BROTHERS COMPANY were pioneers in their field, and have never stopped pioneering. These men are standing in front of

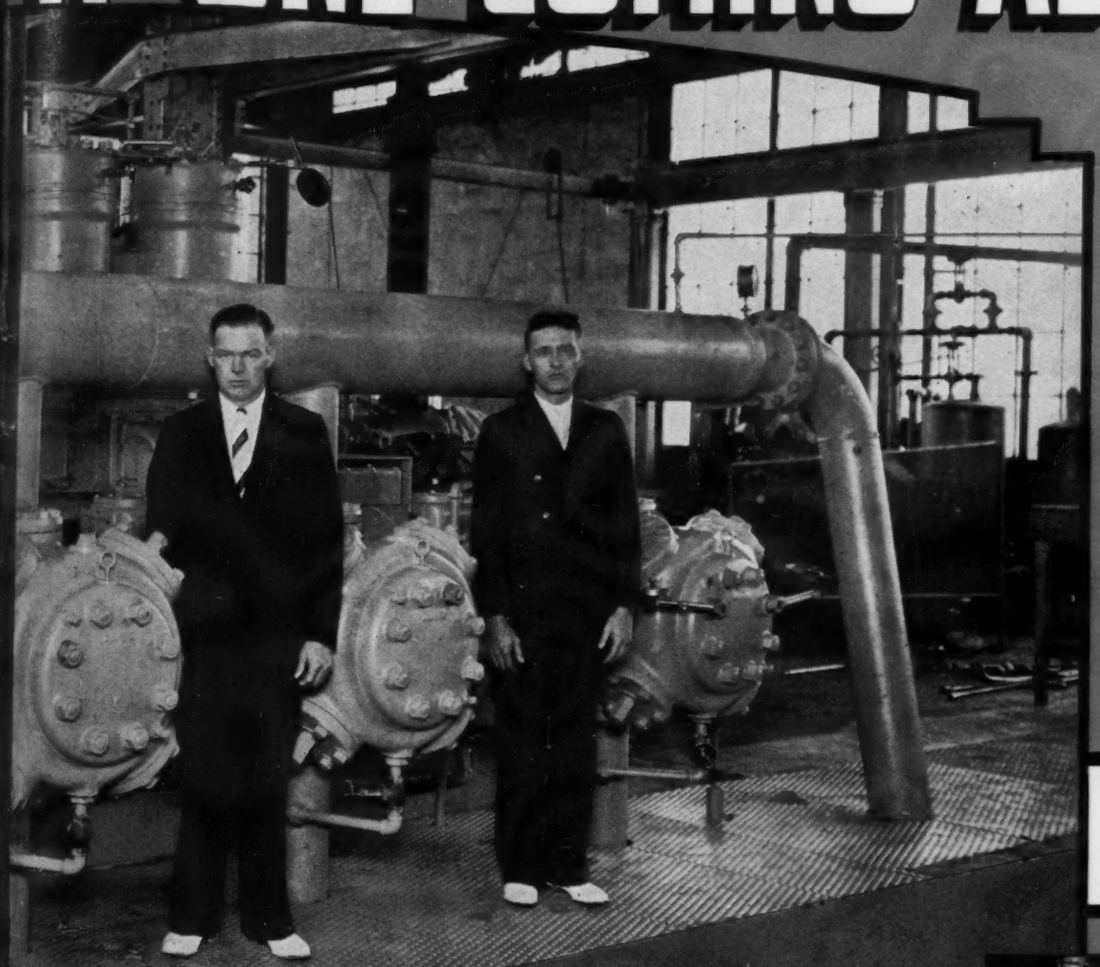
See CLARK Section,
1937 Composite Catalog

CLARK BROS. COMPANY

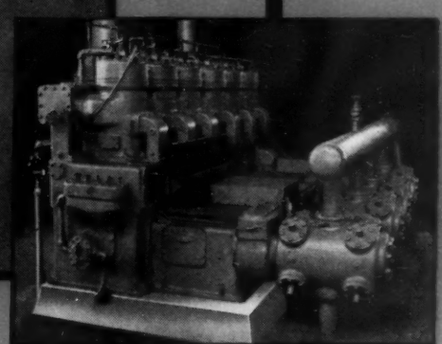
Olean, New York,
U. S. A.

CLA

W ONE COMING ALONG!



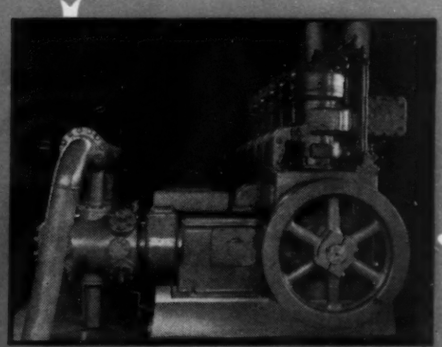
DeLong, son, 36 years of service; Frank Davie, grandson, 15 years; Robert Giberson, great-grand son, 4 years.



The "Super-2-Angle" is offered in 2, 3, 4 and 6-cylinder Sizes, 200 to 600 H. P.

WORKMEN IN ONE FAMILY
CLARK Product!

a brand new CLARK product—the CLARK Super-2-Cycle Angle Compressor in the big 600 H. P. size. The CLARK "Super 2 Angle" has introduced 5 important savings. It (1) Cuts transportation and erection costs because shipped assembled; (2) Needs smaller foundation; (3) Needs less floor space, smaller building; (4) Saves fuel; (5) Has lower maintenance costs. In the 6-cylinder size these savings will be even bigger. Write for particulars.



Side View New "CLARK Super-2-Angle" in 6-Cylinder Size

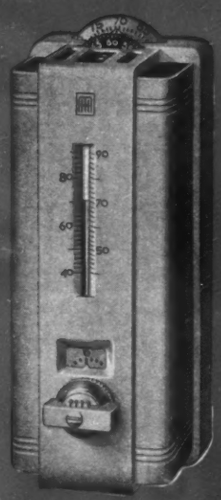
ARK

Export Office: 30 Rockefeller Plaza, New York. Midcontinent Sales Offices and Warehouses: Tulsa, Okla., and Houston, Texas. West Coast Office: Smith-Booth-Usher, 2001 Santa Fe Av., Los Angeles, Cal. Foreign Offices: 72 Turnmill St., E. C. 1, London, England; 4 Str. General Poetas, Bucharest, Roumania

The
CLOCK THERMOSTAT
of the
GAY NINETIES

THEN as NOW & Economy

LOWERED NIGHT TEMPERATURE MEANT



THE DA-NITE
ACRATHERM
OF 1937

EVEN before the turn of the century, when thermostats were considered a luxury instead of a distinct necessity, lowered night temperature meant fuel economy. But its a far cry from the antiquated thermostat and clock with its falling chain and weight to the handsome new Minneapolis-Honeywell Da-Nite Acratherm of today. Now, a simple twist of the fingers at night or before leaving the house lowers the temperature, which is automatically restored at the time selected. Show your customers the advantages of lowered night temperature and include the new Da-Nite Acratherm on every installation. Minneapolis-Honeywell Regulator Company, 401 East Twenty-eighth Street, Minneapolis, Minnesota.

■

DEPENDABLE CONTROLS COST LESS THAN SERVICE

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Control Systems

BROWN INDUSTRIAL INSTRUMENTS • NATIONAL PNEUMATIC CONTROLS

The HORSEPOWER You Need

..at the SAVINGS You Want! $

with the New GMR ANGLE COMPRESSOR UNIT

A TWO-CYCLE COMPRESSOR UNIT BUILT IN TWO, THREE AND FOUR CYLINDER SIZES . . . TO SUIT YOUR NEEDS.

●

RATED FROM 150 TO 300 HORSEPOWER.

●

75 H. P. PER CYLINDER.

CONVENIENT!

- Shipped completely assembled except for attaching compressor cylinders.
- Factory alignments need not be changed when erected in field.
- Easily transferred from one location to another.
- Rugged enough for heaviest usage.
- Light enough for truck transportation!

ECONOMICAL!

- Transportation and erecting costs are lower because the unit is portable and factory-assembled.
- Streamline scavenging affords more power with less fuel . . . greater combustion efficiency.
- Positive pressure lubrication assures long life and economy.
- Oil-cooled pistons and spacious water jackets mean fewer shutdowns.

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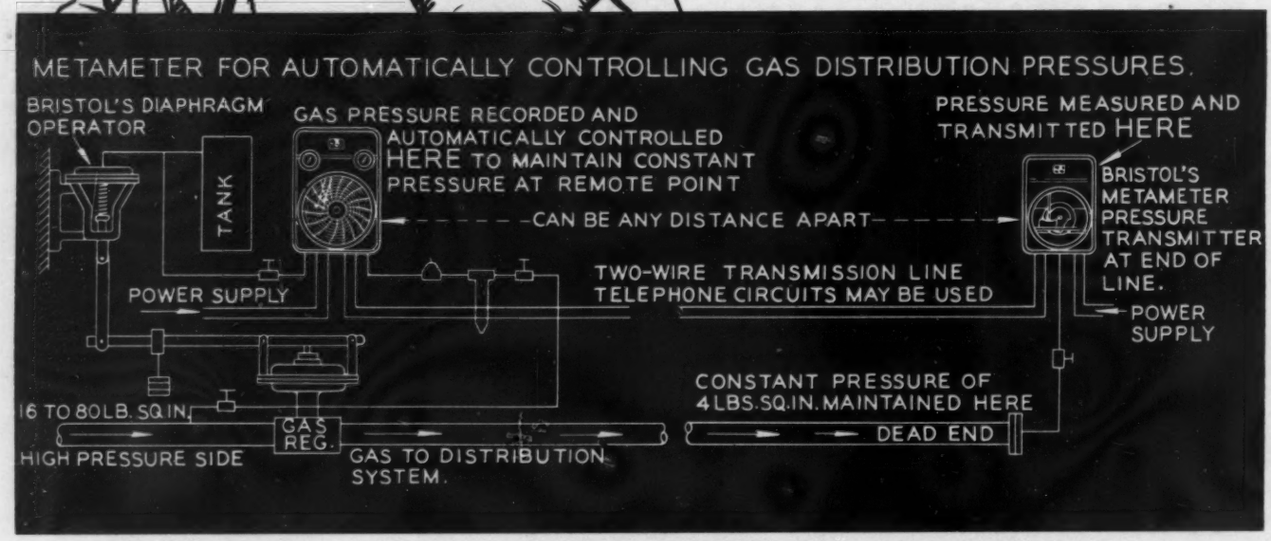

METAMETER FOR AUTOMATICALLY CONTROLLING GAS DISTRIBUTION PRESSURES.
BRISTOL'S DIAPHRAGM OPERATOR
TANK
GAS PRESSURE RECORDED AND AUTOMATICALLY CONTROLLED HERE TO MAINTAIN CONSTANT PRESSURE AT REMOTE POINT
PRESSURE MEASURED AND TRANSMITTED HERE
BRISTOL'S METAMETER PRESSURE TRANSMITTER AT END OF LINE.
CAN BE ANY DISTANCE APART
TWO-WIRE TRANSMISSION LINE TELEPHONE CIRCUITS MAY BE USED
POWER SUPPLY
POWER SUPPLY
CONSTANT PRESSURE OF 4 LBS. SQ. IN. MAINTAINED HERE
16 TO 80 LB. SQ. IN.
GAS REG.
DEAD END
HIGH PRESSURE SIDE
GAS TO DISTRIBUTION SYSTEM.

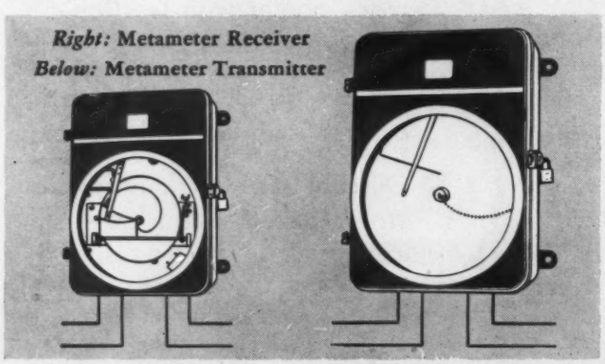
Another simple low-cost Metameter installation for remote control of gas line pressures

Again Bristol's Metameter System of long distance pressure measurement and control triumphs! This time it is in connection with holding the line pressure constant at the far end or low point in the distribution system of a southern gas company.

Regardless of demand or fluctuation in load, Metameter is here keeping pressure variations within 0.2 lbs. To the consumer or user, this means dependably satisfactory service. To the company it means surprisingly lower leakage losses since pressure is continually maintained at the optimum low value.

As the diagrammatic drawing shows, the installation is unusually simple. It consists of a transmitter at the end of the line where pressure measurements are initiated, a recorder controller receiver at headquarters, and a simple two-wire circuit (here an existing telephone line), for carrying impulses from transmitter to controller. By means of a Bristol's Ampliset, controller sensitivity is always correct for load lag.

Further information gladly furnished.



Right: Metameter Receiver
Below: Metameter Transmitter

THE BRISTOL COMPANY · WATERBURY · CONNECTICUT
Branch Offices: Akron, Birmingham, Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, Seattle. San Francisco, Canada: The Bristol Company of Canada, Limited, Toronto, Ontario. England: Bristol's Instrument Company, Limited, London, N.W. 10

BRISTOL'S

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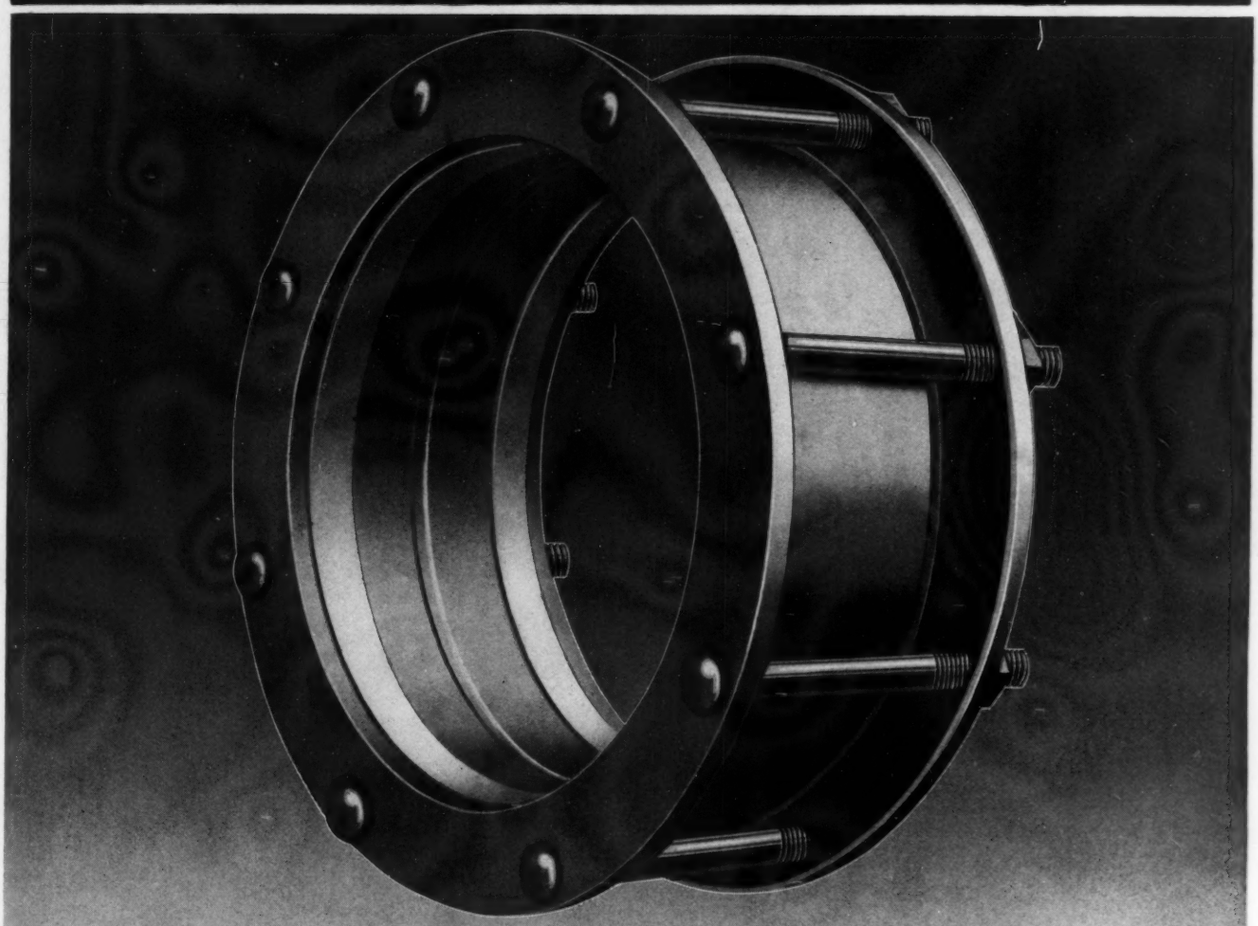
PIONEERS IN PROCESS CONTROL SINCE 1889

DAYTON



The Dayton No. 1 Coupling

Now available in sizes $6\frac{5}{8}$" O. D. to 24" O. D. with electrically welded centers.

THE NATIONAL SUPPLY CO. OF DELAWARE
DAYTON COUPLING DIVISION · · TOLEDO · OHIO

CUT YOUR ANNUAL COST

with Anaconda Copper Tubes for small mains and services

SEVERAL well-known utilities have found that the *far superior durability* of Anaconda Copper Tubes makes their average annual cost very much less than that of rustable lines. In fact, experience has indicated that, when used for small mains and services, the rate of corrosion on copper is only about one-tenth as rapid as on rustable metals.

Small wonder that Anaconda Copper Tubes are being used increasingly by the gas industry... especially since the first repair job of any consequence to rustable lines would cost far more than the original saving which they afforded.

All Anaconda Copper Tubes are deoxidized to increase corrosion resistance and improve physical properties. And they are carried in stock by leading supply houses in all sections of the country.

What kind of fittings?

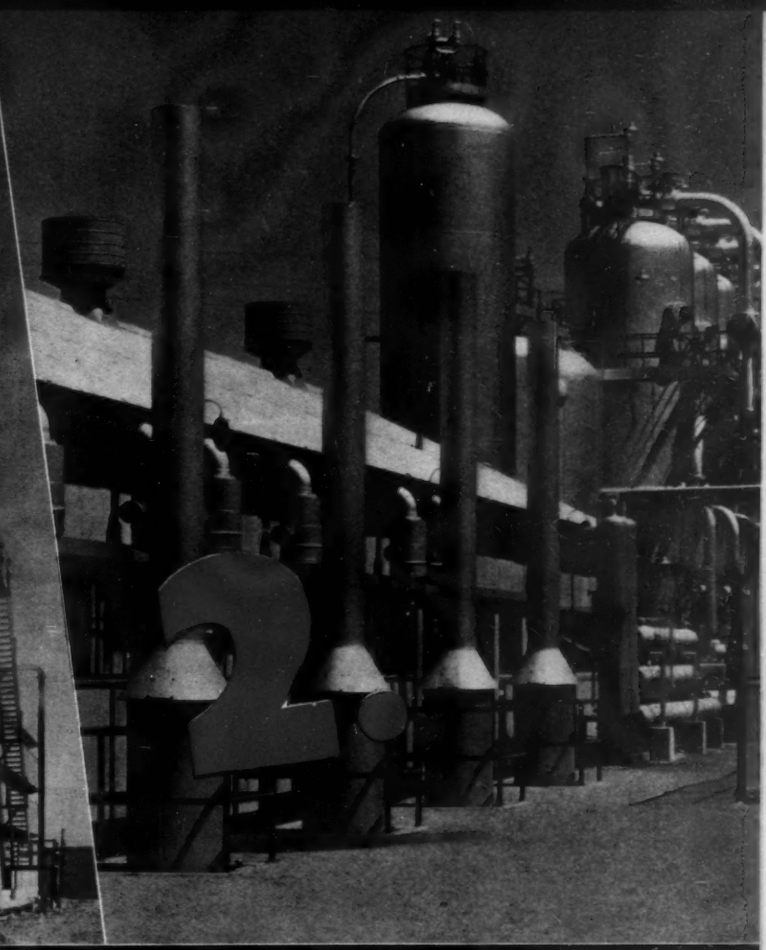
The American Brass Company recommends that all copper tubes installed underground be connected by means of flared tube fittings, or special fittings. If solder type fittings be employed, the joints should be brazed or welded rather than soft soldered. Underground lines are frequently subjected to considerable movement caused by constant shifting of the soil. The mechanical joint secured by the flared tube type of fitting is better adapted to such service than soldered connections.

3765

Anaconda Copper & Brass

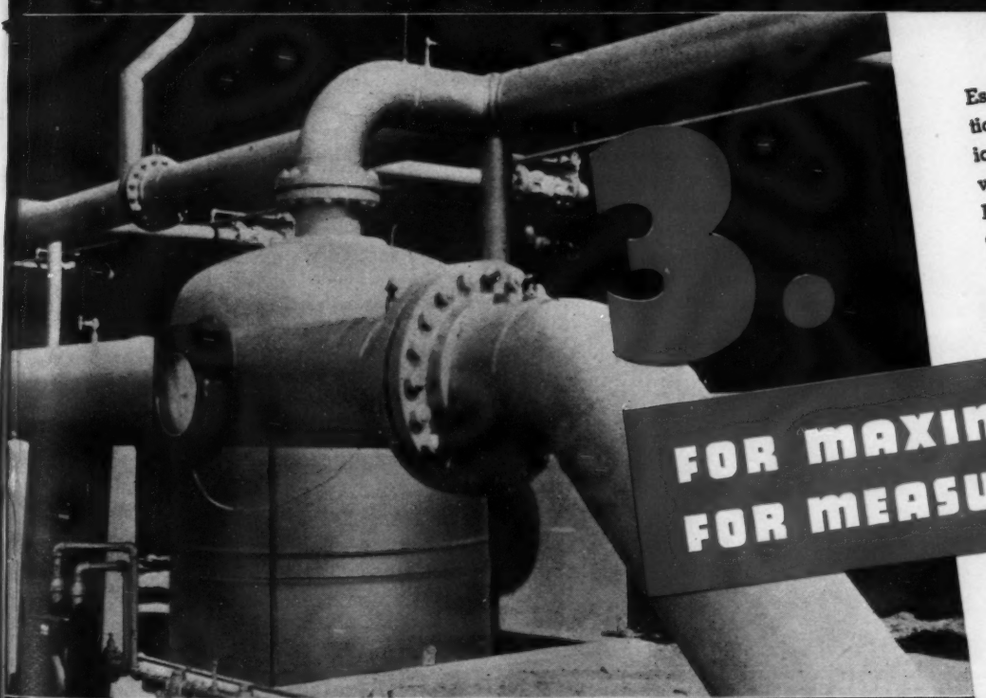
THE AMERICAN BRASS COMPANY • General Offices: WATERBURY, CONNECTICUT

Offices and Agencies in Principal Cities • In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ont.



FLUOR AREATOR TYPE COOLING TOWERS

FLUOR AIR-COOLED MUFFLERS



FLUOR GAS CLEANERS

Essential requirements of many production, manufacturing and distribution services in the industry are met in 1-2-3 fashion with Fluor Aerator Type Cooling Towers, Fluor Air-Cooled Mufflers and Fluor Gas Cleaners. The world-wide acceptance of these products is due primarily to the following important features. Consider them carefully.

FOR MAXIMUM EFFICIENCY FOR MEASURABLE ECONOMY

1. Fluor Aerator Type Cooling Towers—eliminate wind blown spray; require least amount of water for make-up; give maximum and uniform cooling; utilize a minimum of ground space.
2. Fluor Air-Cooled Mufflers—eliminate expenditures for water as a cooling agent; insure cooler stack, room and floor temperatures; are quieter in operation; permit development of maximum engine horsepower; are available for all types of engines.
3. Fluor Gas Cleaners—remove over 99% of moisture from the gas stream; no moving parts; simple, fool-proof construction; quickly serviced; minimum resistance to passage of gas.

Briefly, increased efficiencies and measurable operating economies result from the use of these Fluor products.

Illustrated Bulletins containing valuable engineering data are available upon request.

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The UNIVERSAL *appeals to the* CONSUMER'S INTEREST ★★★

THE STANDARD OF COOKING PERFORMANCE DEPENDS ENTIRELY ON THE DEVICES CONTAINED IN THE RANGE

THE GAS SERVICE IS ONLY AS MODERN AS THE GAS RANGE

UNIVERSAL PRECISION OVEN COOKING GIVES COMPLETE RELEASE OF TIME

★ The Universal Gas Range with its higher standard of cooking performance, promotes both the Utilities' as well as the Consumers' interests. For the Utility Company it creates customer satisfaction, consumer good-will and public appreciation of the true merits of gas as the ideal cooking fuel. To the Consumer, the Universal brings definite advantages in broiling, top burner and oven cooking—presenting new convenience of use throughout every phase of the actual cooking operation. ¶ The Universal Precision Oven makes oven cooking not only simple and certain, it also gives complete release of the Homemaker's time, eliminating all those time-consuming chores which formerly kept the Homemaker tied to the kitchen when baking or oven cooking. ¶ The Universal Gas Range, as well as the Universal advertising and sales promotion program, have been designed to meet the particular needs and requirements of the Gas Utility Company.

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NO TURNING

NO SHIFTING

NO COVERED ROASTING

NO TESTING

NO SEARING

NO EXCESS SHRINKAGE

NO BURNING

UNIVERSAL PRECISION OVEN ELIMINATES TIME CONSUMING COOKING CHORES

UNIVERSAL GAS RANGES

MANUFACTURED BY CRIBBEN & SEXTON COMPANY, 700 NORTH SACRAMENTO BOULEVARD, CHICAGO, ILLINOIS

GAS
September, 1937

Guest Editorial

ROMAN RIDERS

By L. M. KLAUBER

Vice-President in Charge of Operation
San Diego Consolidated Gas and Electric Company

I HAVE postponed the preparation of these remarks until the final curtain has been rung down on the Forty-fourth Annual Convention of the Pacific Coast Gas Association in Seattle. I wanted, if possible, to get the key-note of the Convention—to learn what was uppermost in the collective delegate mind.

Whether planned or accidental, the answer has been self-evident. It was the coming battle for the domestic load, particularly the cooking load. Papers on advertising, on accounting, on public policy, on meters seemed to drift inevitably into a discussion of the future of that phase of our business and what might be done to win the competitive war.

There developed a certain arching of the eyebrows amongst some of the exclusively-gas men with respect to the policies and activities of their brethren popularly referred to as Roman Riders, the latter being the representatives of the combination gas and electric companies. It was hinted that the Roman Riders were not quite impartial in their recommendations to customers seeking suggestions and advice, but were, in fact, starving the gas horse.

I rise to a defense of the Roman Rider. It may be true that in this territory the battle of the kitchen is not going forward as fiercely as in areas where the field is covered by separate organizations. But this does not necessarily mean that the latter situation is to be preferred. A good healthy competition between gas and electric organizations, whether they be in the same or separate companies, is to be recommended—a competition that will keep sales forces ever alert and active, and will bring into the kitchen the benefits of modern planning, and the newest and most efficient products of the appliance manufacturer's art. Without this healthy competition the family funds will go to some other part of the household, and the kitchen will remain Cinderella's hideout.

But it must be recognized that competition sometimes goes beyond reason and judgment. There have been, and are, competitive situations so fierce, that salesmen in the heat of battle make claims which cannot be justified. Installations are made ill-suited to the customer's needs or purse; sales policies and inducement plans are adopted which can only result in loss to both sides—to be followed someday by impairment of service.

These extremities the Roman Rider seeks to avoid. He recognizes the virtues and short comings of both his horses. He tries to recommend impartially for each customer-use that product which will best serve that customer, keeping in mind his need, his purse, yes—and his desire.

Better to be a Roman Rider guiding both horses toward a definite destination than to ride a horse wherein a race against a rival, rather than a destination, becomes the goal.

SAFEGUARDED

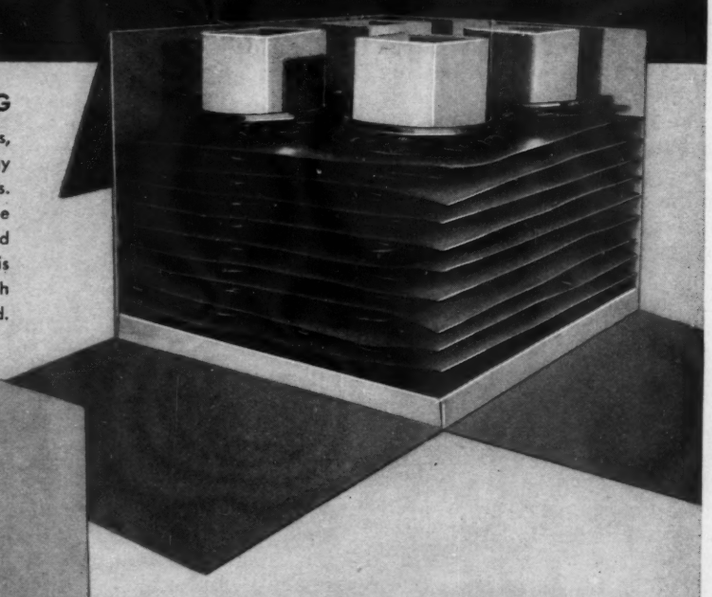
. . . every Step!

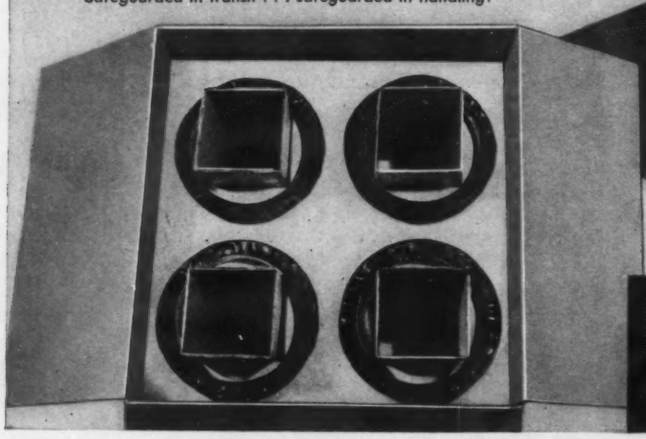
● RIGHT-SERVICE DIAPHRAGMS . . . for new or repaired meters . . . are insured only by the perfection of every single detail. Considering the important function of the diaphragm, small initial "savings" may be decidedly "penny wise, pound foolish." Savings which fail to insure experienced manufacture . . . or uniformity . . . or flaw-free quality . . . can bring no real economy. Emphatically true of diaphragms! Every quality—every desirable characteristic determined by laboratory research, by field test and by wide diversity of installation—is found UNSKIMPED in the American Meter Company product. What better assurance of quality than a source of supply which today—because of adequate purchasing power—has access to prime leather selection, scientifically prepared impregnating formulas and exclusive methods of fabrication and seasoning? Like other AMERICAN gas meter refinements, diaphragm quality is being confirmed . . . by the actual performance records of meters in service.

● Our DIAPHRAGM RESEARCH BULLETIN shows the painstaking background implicit in quality merchandise. May we send you a copy—or consult with you on your diaphragm problems?

PROPER PACKING AND SHIPPING

This perfected method, developed over a period of years, has won the enthusiastic approval of our gas company customers. Note the carton built to carry fifty diaphragms. It contains four hollow square tubes. Over each tube the diaphragms are placed—four to a layer. On top and underneath each layer a piece of paraffin chip board is inserted. Thus, the diaphragm never comes in contact with the side of the case—but only with the paraffin chip board. *Safeguarded in transit . . . safeguarded in handling!*





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ESTABLISHED 1836

AMERICAN METER COMPANY

INCORPORATED

PACIFIC METER WORKS • LOS ANGELES • SAN FRANCISCO

September, 1937

GAS

Vol. XIII, No. 9

THIRTEENTH YEAR OF PUBLICATION

LOS ANGELES
810 South Spring Street

CHICAGO
1064 Peoples Gas Bldg.

HOUSTON
306 Shell Bldg.

GAS Presents This Month

LAST month in Seattle, Washington, the Pacific Coast Gas Association held its 44th Annual Convention, and one of the many high-lights on the program was the plea made by A. F. Rice, market development manager of the Southern California Gas Co., for a closer cooperation between the utilities and the manufacturers and between the manufacturers themselves in promoting universally gas and gas service. To say the least, Mr. Rice's ideas were forcefully and uniquely expressed. So much so that President Herman Russell of the American Gas Association invited him to present his paper before the American Gas Association Convention in Cleveland this month. We haven't heard whether or not Mr. Rice is going to do this, but we take pleasure in publishing his paper on Page 16 of this issue.

The P. C. G. A. convention cannot be passed over with the mere statement that it was held. It was a fine convention, well attended, well managed, and productive of a good many ideas. Much more is said about the convention beginning on Page 18, and on that page and subsequent pages are reproduced photographs of a few of the 385 registered delegates.

A month or so ago a very busy Cincinnati, Ohio, gas executive, E. A. Munyan, dropped in at the office. He had just finished a week of nosing around the Southern California Gas Company's properties and was about to continue his gas company inspection tour of the western United States. We asked Mr. Munyan if he would be willing to relate some of his experiences for the readers of G A S. Mr. Munyan was quite willing, and the story of his inquisitive perambulations appears on Page 23. Don't think for a minute that we intentionally skipped over Page 22 —that's where Dale Remington of the Wisconsin Public Service Corporation expresses his views on Kitchen Planning, and these ideas seem to include the use of a more forceful sales approach in spreading the doctrine of Kitchen Planning.

In Syracuse, the Syracuse Lighting Co., Inc. has been making a concerted effort to sell gas and gas ovens to bakeries. In this issue (Page 35) W. C. Agnew of that company has summarized the various methods used and described the installations made in turning this load from competitive fuels to gas.

Between Pages 25 and 32 appear several contributions in digest form. In the gas manufacturing field, C. Eldon White of San Diego offers data on the yield of tar in the thermal decomposition of various gas oils, and it is shown that this yield is surprisingly constant for all types of oil studied. W. W. German and Worden Pope state that in the operation of gas power boilers increased efficiency results from the use of a refractory insulating lining within the boiler housing, giving quick load pick-up, lessening of radiation losses, and more uniform fire-box temperatures. Steam economy also results from the installation of thermostatically controlled zoning valves on heating supply lines. Reducing air leakage into the boiler setting is also very important.

E. H. Mohr discusses gas range oven thermostat calibration. The proper apparatus which insures that the control of oven temperature will be accurate to 15° F. plus or minus, which is the limiting variation for satisfactory cooking, is described. A further discussion of the general topic of gas appliance testing is offered by R. V. Davis in his appraisal of the utility appliance testing laboratory as an aid to the company sales department.

In the Measurement and Control department, B. G. Williams reviews the experimentations carried on in Germany in the use of a double orifice, while in the Butane Propane News section this month we find increasing attention being given to the sale and merchandising of liquefied petroleum gases.

A word may now be said about what will appear in G A S next month. Of primary interest will be a staff-written article on the $20,000,000 expansion program of the Panhandle Eastern Pipe Line Co., which has been looping its existing transmission line. The October issue will also carry a story on the compressor station construction which is a part of this Panhandle Eastern program. And, of course there will be much to tell about the American Gas Association Convention which opens in Cleveland, September 27.

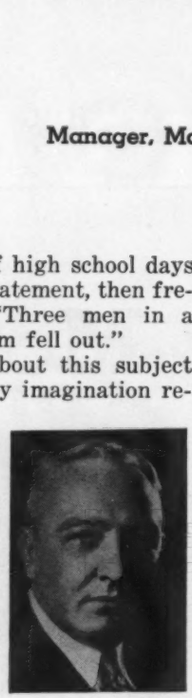
"THREE MEN IN A BOAT . . ."

By A. F. RICE

Manager, Market Development, Southern California Gas Company

IN my memory of high school days there lingers a statement, then frequently used: "Three men in a boat and—the bottom fell out."

While thinking about this subject and a title for it, my imagination related the competitive strength of our gas industry to that old statement, and this led further to an imaginative comparison of the struggle between the gas and electric industries for supremacy in the domestic field.



A. F. RICE

For the moment, I am thinking of the gas industry as one of the boats that I want to talk about, and the electric industry as the other. Both of these craft are afloat on the stream of public opinion. A race for public good-will is on.

We can imagine our competitive situation as a good stiff race between craft and crews. In looking over the two, I seem to see an edge in structure for the electric entrant. It apparently is a streamlined craft. It has entered the race with an acknowledged handicap of our 50-year lead in the bid for domestic fuel service, yet the crew seems to be cheerful and optimistic.

Somehow our boat, the one we are interested in, seems to be wider across the beam, more of a pleasure craft. Possibly it passed all fuel competitors so many years ago in the race for domestic business that little attention has been paid to keeping it shipshape and ready for the challenge from the strongest competitor it has ever known.

What of the crews of these two craft? Those that man our boat appear not to be in the best of competitive condition. So long have they been in the lead—so definite has been their secure position that it is doubtful at this moment that they can capably fight off the onrushing speed of the competitive craft.

In the other boat, the men seem to be capable, clean-limbed, lithe, bronzed athletes, and their faces seem to reflect the spirit of anxiety to make good in a new game.

And how do these crews seem to be going about their task? Our crew seems not to be working in unison. Far down the stream, however, our opponent's oars seem to swing rhythmically in long, strong, steady strokes. The downstream boat seems to be little by little lessening the distance between the two, closing that gap of open water that represents the domestic market both are striving for.

But apparently there are more than three men in the competitive boat. The fourth man is not rowing; he seems to be talking to his crew; seems to be beating the rhythm it follows. He must be the coxswain. Who is he?

Let's turn to a practical analysis of "Three Men in a Boat"—in our boat, and our competitors'—and see if there is something in this vision that can be converted to measures of importance to us.

Challenge of Electricity

By the common law, right of possession, the domestic fuel service for American homes belongs to the gas industry. In territory served by gas, 90 per cent of this business is now in our possession. Electricity is expanding ever so little, but, nevertheless, expanding. Our right to the domestic business is being challenged successfully.

Instead of a feeling of security that leads to smugness, or indifference to competition, or a stubborn refusal to believe competition has anything to offer that might be of value to us in developing competitive tactics that will be effective, let's analyze and weigh some of the competitive methods being utilized, for they may reveal some valuable practices that we might do well to imitate.

The first thing that looms up in the electric industry as its greatest asset and its strongest force is the gigantic manufacturers within that industry that are not only national in scope but international.

Within the gas industry we fail to find anything of equal magnitude. Our largest organizations — and some of them are large, strong, well financed, well managed — are, by comparison, small. Our manufacturers, as big and valuable and effective as they are, are individualists rather than conformists in the broad scheme of industry planning for competitive sales effort. For instance:

A manufactures gas generating equipment. B manufacturers gas holders. C manufactures gas compressors. D manufactures gas valves. E manufactures gas pipe. F manufactures gas regulators. G manufactures gas meters. H manufactures gas ranges. I manufactures gas water heaters. J manufactures gas heating appliances. K manufactures gas refrigerators. None, apparently, is engaged in or interested in, directly, any other phase of manufacturing equipment or appliances for the gas industry.

The electric industry possesses two outstanding organizations manufacturing everything from generating equipment to transmitting and control equipment and electric appliances —General Electric and Westinghouse. These are ably supported by a secondary type of "all appliance" lines manufacturer as represented by Frigidaire, Kelvinator, and Norge. The latter, too, are interested in international as well as national manufacturing and selling of home appliances. All include the new field of air conditioning in their plans.

Now, the men in the electric industry, as well as in ours, think and act selfishly to better their own interests. No matter how selfish electric competitors may be, the very nature of their organization impels them to in-

dustry-wide thoughts; whereas similar organizations in our industry think within the well-defined limits of their specific businesses; for instance, they think about gas pipe and the pipe business; gas meters and the meter business; gas ranges and the range business; not of *gas* and the *gas industry* as a whole. We have no single manufacturer whose individual, selfish interest threads through every phase of the gas equipment and appliance business.

The result of the difference in organization is that electric competition is integrated and co-ordinated, and these benefits spring from the selfish-interest element and not because electric men are more original in thinking than men in our business.

We cannot be charged with disintegration or discordance or disorganization, because, from an industry standpoint, never yet have we accomplished complete integration, co-ordination, or organization. These premises are wrong, if the following challenges can be answered:

What manufacturer of gas generating equipment or gas transmission pipe ever consistently donated a part of his profit in the form of paid-for space in a national periodical such as *The Saturday Evening Post*, telling how proud he was that he could play a part in either the manufacturing or conveying of this marvelous, superior, clean, economical fuel for public use?

What manufacturer of gas ranges has ever made it a regular practice to tell a story of the value of gas water heating, space heating, or refrigeration either in his catalogs or folders, or has educated his salesmen in the value of this correlated gas service to sustain not only his business now but gas service in the future?

What water heater manufacturer has ever given gas cooking any sales publicity?

What gas meter manufacturer has ever made any appeal to the public to consider the finest fuel on earth, gas, as the preferred fuel for domestic use?

What manufacturer of any gas equipment or appliance consistently finds room in his sales materials, advertising, or verbal appeals for a few words of commendation for gas itself as a fuel?

These things are being done every day by the "all lines" national manufacturers of electric equipment and appliances, and to a lesser extent by the manufacturers of electric all-appliance lines.

Until these things become commonplace practices in our business, we cannot hope to affect public opinion as favorably as our competitor who does them consistently—and in a manner disregarded by the gas industry.

The only thing that can affect public opinion is what the public is told and how it is presented. Electric competition tells its story far and wide in strident tones that are being heard. Our story must be told equally well, not by one but by all branches of our industry.

Competition believes there is concrete value in appealing to the emotions by using symbolic and inspirational features as sales tools in its thinking, writing, and talking.

THE THOUGHTS herewith expressed by Mr. Rice were first presented before the Manufacturers' Section of the Pacific Coast Gas Association at the Association's 44th Annual Contion in Seattle, Washington, August 17-19, 1937.—Editor.

We have been prone to use logic, factual argument, reserve, and dignity, perhaps because of lack of appreciation of the value of emotional factors, or because we were too self-conscious, or because we feared ridicule should we resort to dramatic statements and actions to focus public attention upon the attributes of gas. We do not generally proclaim either in print, in action, or in spoken words that:

The gas flame is:

1. The cleanest because it cleanses.
2. Coolest because it ventilates.
3. The only silent domestic fuel servant.
4. More dependable than sunlight.
5. The only fuel that acquires the user's habits.
6. The only fuel with the "get away" and speed of a thoroughbred.

Or that gas:

1. Serves silently, cheerfully, and visibly.
2. Snaps into action with a cheery "hello."

Or that:

1. There is instant life and action when you command gas to serve you.
2. Cooking is a lonely task unless a LIVING gas flame works with you.
3. Gas provides the wonder-flame. It cools, heats, cooks, silently and efficiently.

These claims made for gas alone may not be convincing to the users of obsolete equipment, because such equipment will refute such claims. Made in connection with new or improved appliances, as attributes of gas when so used, they are utterly convincing.

Whether it is generally considered as rising up or sinking down to our competitor's level to use emotional appeals, and inspirational means of supporting them, is not the point. We have got to use these methods if we are to find a place in the public eye; if we are to be held modern by public opinion. The modern tempo of living today is at a speed too high to permit pausing long enough for logic and plain unvarnished facts to affect the public mind, or interest it.

We cannot fail to note another outstanding element that so far has not been a feature of the gas industry; and that is the general planning of the electric industry as a whole to accomplish certain marketing results.

One outstanding example of this type of planning is distribution. By this is meant a studied and consistent effort to secure dealerships for electric appliances in all logical neighborhood areas in large cities and as many as can be sustained in small towns. It has been thoroughly demonstrated that this procedure is valuable in effecting public acceptance and introducing new or improved types of appliances and appliance service.

With the entry of the old-line electric refrigerator manufacturers into the "all electric lines" appliance manufacturing, adequate distribution through dealers will be more dominant in our competition's merchandising plans in the future than it has been in the past.

Obviously, if we wish to exploit a new type of service or to convert the public to the use of a more satisfactory type of appliance, dealer distribution is essential.

Another evidence of sound planning is the progressive appliance sales programs utilized by competition to acquire our domestic business.

The electric refrigerator, of all electric appliances, was the most readily accepted. A long-range planning program was established and the electric refrigerator was placed in this planning as Step No. 1, with the thought that, once this item was installed in the home, it could be followed through with other electric appliances. For several years the electric utilities and manufacturers have spent a large portion of their promotion funds upon electric refrigeration to make it the spearhead in the attempt to capture the domestic business. The electric refrigerator has enjoyed rapid sale in large quantities, and market saturation is now considered possible.

Step No. 2 is the electric range.

The increase, now, of electric range advertising by utilities and manfacturers, as compared to the former minor position it was given in pro-

(Continued on Page 60)

(1) Returning home are W. H. PAPE, Chicago; G. T. BROOKE, Los Angeles; F. F. ELLIOTT, San Francisco, of the Crane Co. (2) Advertising heads A. C. JOY, Pacific Gas and Electric Co., and J. S. SPAULDING, Southern California Gas Co. (3) P.C.G.A. President-elect N. R. McKEE, vice-president, Southern Counties Gas Co. (4) A. F. RICE and FRANK WEISS, Southern California Gas Co. sales executives. (5) President H. R. BASFORD of the H. R. Basford Co. (6) Pacific Gas and Electric men A. E. ENGLEBRIGHT, division gas superintendent; R. S. FULLER, engineer of gas construction and operation; and E. G. McCANN, personnel manager.

REVIEWING

GAS STAFF REPORT

SHOULDER to shoulder the component members of the gas industry are marching on to a united front. This feeling of martial unification and advancement was the underlying motivating power behind the 44th Annual Convention of the Pacific Coast Gas Association held at the Olympic Hotel, Seattle, Wash., August 17-19, 1937, as it marked its path of achievement from the past and pointed the way to the greater objective of more widespread and more efficient fuel service in the future.

Casual comments, a sure yardstick, dropped in the lobby of the Olympic Hotel and on the return trip from Seattle indicated that the Convention was a convincing success. The total registered attendance was 385. Of these 197 were delegates from 28 gas utilities, and 46 represented appliance manufacturers. In all 28 appliance and 15 equipment manufacturers were represented. Delegates came from far and near—from Southern California, Arizona, Texas, the Atlantic seaboard, Canada, and Honolulu.

The Seattle convention will be remembered for many things outside of the sessions program—sunset on Puget sound, the capacity attendance at all events, the early morning salmon fishing, the snow covered peaks of the great Northwest, and the geniality and hospitality of the Convention committee and the members of the Seattle Gas Co.

Association President James F. Pollard, president of the Seattle Gas Co., brought to order the Convention's first general session on August 17 at the Olympic Hotel. Attended by practically all of the 385 registered delegates, the first general session offered a program of entertainment, inspiration, and reverence.

Appropriately leading off the convention were the atmospheric and entertaining tall tales of Paul Bunyan, the colossus of the Northwest's lumber camps, as they were told to the assembly by James Stevens, his biographer. And during the convention many an analogy was drawn between the problems of the gas industry and the seemingly impossible difficulties overcome by Paul.

During this first session the slate of officers as had been previously nominated was unanimously elected. Norman R. McKee, vice-president of the Southern Counties Gas Co., Los Angeles, became president; H. L. Farrar, president of the Coast Counties Gas and Electric Co., San Francisco, vice-president; and D. G. Martin, auditor of the Pacific Gas and Electric Co., treasurer. Clifford Johnstone is managing director of the Association.

Mr. McKee in accepting the presidency stated that the Association would follow through on the activities inaugurated during the past two years, and in keeping with the prevailing martial spirit he announced that the slogan for the next year would be, "The United Front."

The first general session was reverently closed with the "In Memoriam." The delegates stood with bowed heads as Clifford Johnstone read the names of those who had passed on during the past year.

Keynote Addresses

Inspiration during the first general session was furnished by two gas industry leaders, Herman Russell, president of the American Gas Association, and President Pollard.

Mr. Pollard, in summarizing the accomplishments of the association during the past year and in pointing the way for his successor, emphasized the importance of continuing industry research not only to improve present appliances and services but to develop by-products from gas which may possibly mean unheard of future expansion. He urged also a continued and even more energetic support of the national advertising campaign, and called upon the manufacturers to cooperate with each other and with the industry in financially supporting the campaign. Mr. Pollard, in speaking of the mass market, asked the manufacturers to offer less expensive appliances that could be more widely distributed, thus insuring a larger market for gas and checking electric encroachment.

PACIFIC COAST GAS ASSOCIATION'S 44th ANNUAL CONVENTION at SEATTLE

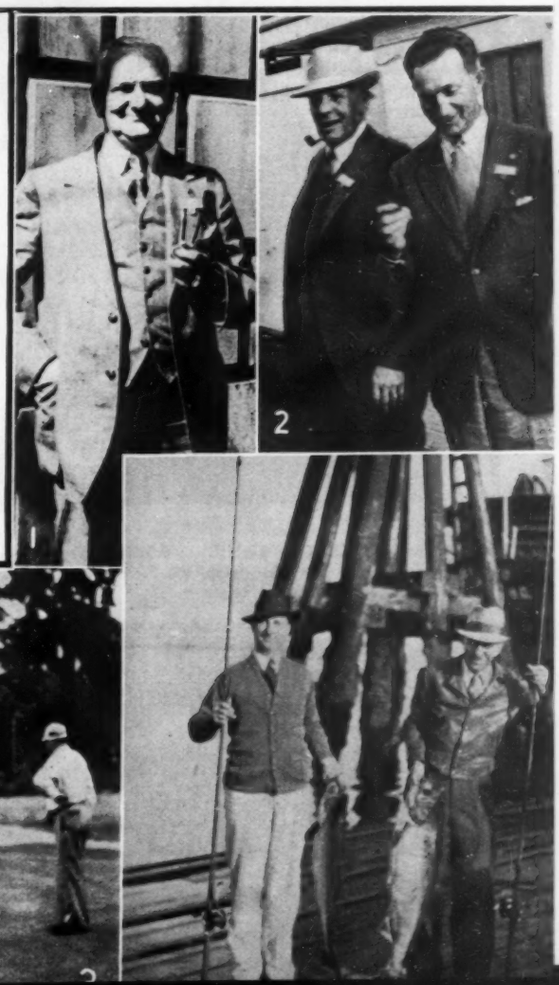
The high light of the first general session was an illustrated address by Herman Russell, president, American Gas Association and president, Rochester Gas and Electric Corp., on the "Economics of Gas and Electric Competition." The data presented were based on a study started in Rochester some 18 months ago and discussed on several occasions before groups of gas and electric men (see *G A S*, June 1937, page 15.) The general purpose of this study is to aid in determining sales and promotion policies, particularly in combination companies, where a choice between gas and electric promotion must be made. In addition to data on the Rochester conditions, which are apparently typical, a national and Pacific Coast picture were presented, the latter of particular interest to the P. C. G. A. group.

The study consisted of determining, first, what was in the customers' interest (cost of service, and results obtainable from appliances) and, second, which service, or combination of services, brought the greatest net to the company, on both pro rata and increment cost bases. The method involved careful investigation of the individual load characteristics of each major domestic appliance (range, refrigerator and water heater) and also a study of various combinations of these appliances to determine their load diversity with each other and the resultant effect on the system load. From cost allocation studies, unit costs for investment and expenses were established. As regards results obtainable by the customer, the advantage lies with gas on the score of flexibility, reliability and speed; also, appliance costs and repairs are favorable to gas.

The general conclusions applying to most combination companies in nearly all sections are that it is in the customers' and the company's interest to retain and promote the gas cooking, water heating and refrigeration load. Straight gas companies must meet competition and aggressively campaign for the domestic fuel load, confident that the business is logically theirs. Where large commercial and industrial power business is being solicited by gas companies in competition with electric power load, this should only be done where there is a certainty that such gas business is definitely in the customer's interest and not merely as retaliation against the electric company for invasion of markets rightfully belonging to the gas company. Straight electric companies should "lay off" the range and water heater load as properly belonging to the gas companies, and as costly to themselves and the customer. Straight electric and combination companies should give more attention to promoting lighting and small appliance load. This field offers great possibilities of development of profitable load, with a minimum of investment.

With regard to the Pacific Coast study, a p a r a l l e l conclusion was reached. It costs the customer less to do his cooking and water heating with gas; a combination company should promote gas refrigeration and add net to the gas department, rather than add net to the electric department through the electric refrigerator. The return to the company is about the same whether a gas or electric refrigerator be sold, but it is important to a combination company to protect its gas investment by selling a gas refrigerator. It is quite possible to develop lighting and small electric appliance use to increase electric net, but there is no such field available for gas promotion. The bad effect of the electric range for the combination company is apparent; also it presents a discouraging picture for the straight electric company unless accompanied by an electric water heater.

The future of the industry depends upon a better understanding, upon the part of the general public and those who are engaged in the gas and electric business, of the many advantages in the way of economy and performance which gas has to offer.

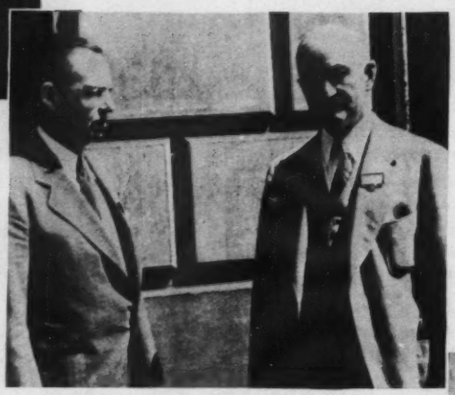


(1) With pipe in hand stands JOHN KEILLOR, gas engineer and manager of the British Columbia Electric Power and Gas Co. (2) Enjoying the Puget Sound boat trip: FRED GILMORE, Republic Steel Co. and WILLIAM MOELLER, Jr., vice-president, Southern California Gas Co. (3) On the green: C. R. GRAHAM of James Graham Manufacturing Co., P. M. DOWNING, vice-president and general manager, Pacific Gas and Electric Co., and J. E. WALLACE, chief engineer, Industrial Fuel Supply Co., watch P.C.G.A. Vice-president-elect H. L. FARRAR, president of Coast Counties Gas & Electric Co., chip to the green. (4) Look what we caught: HOMER MEAD, district manager, Southern Counties Gas Co. and E. A. GUENTHER, Payne Furnace & Supply Co. executive.

GAS CAMERA

. . . Takes a trip to the Pacific Coast Gas Association's Seattle Convention

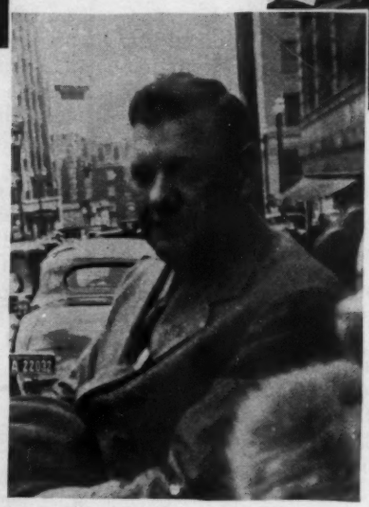
Pacific Gas and Electric Co.'s Personnel Manager E. G. McCANN; Southern California Gas Co. Board Chairman A. B. DAY; Mrs. E. S. JONES; E. S. JONES, general superintendent, Honolulu Gas Co., wait to board a southbound train.



AT LEFT

General Sessions speakers JOHN J. WINN, Jr., commercial manager, Portland Gas & Coke Co., and HERMAN RUSSELL, president, American Gas Association.

CAPTAIN A. E. HIGGINS, vice-president, Pittsburgh Equitable Meter Co., came to the Convention through the air.

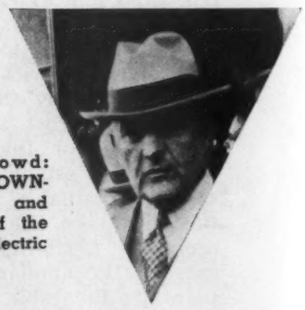


Convention Committee Chairman T. E. ROACH, president of Washington Gas & Electric Co.

Technical Section Chairman OTTO GOLDKAMP, foreman of the gas meter shop, San Diego Consolidated Gas and Electric Co., waits for a cab.

JUST ABOVE sits ALLAN GRANSTROM, whose low gross score of 75 in the Convention golf tournament broughf him the trophy donated by GAS.

Windblown on a ferry: CARL A. SWIGART, trade relations representative, Pacific Coast Gas Association; C. B. BABCOCK, president C. B. Babcock Co.; and R. G. LOGUE, vice-president, Ward Heater Co.



CAUGHT in a crowd: (right) PAUL M. DOWNING, vice-president and general manager of the Pacific Gas and Electric Co., San Francisco.

Lighting up: OTTO MAUTHE, special representative, Southern California Gas Co. and Mrs. MAUTHE. Gesture of joy: N. R. McKEE, Southern Counties vice-president. On the boat: W. P. HUTCHINSON, president, Sprague Meter Co. and P.C.G.A President JAMES F. POLLARD. Posing: A. B. ALLYNE, Southern Counties chemist; GUY CORFIELD, research engineer, Southern California Gas Co.; A. J. NOIA, P.G. and E. personnel department.

This understanding can be brought about by greater sales effort, more showmanship, more advertising and more publicity by those engaged in the industry. The future of the industry will also depend in a large measure upon the development and improvement in processes and appliances. This means a comprehensive research program on the part of companies and manufacturers of appliances and equipment.

Wednesday Session

Top spot on the second general sessions program, judging from the laughs produced and the wisdom dispersed, must go to Dr. Sam Chin, eminent Chinese gas executive, who dropped in on the program during the absence of Franklin Griffith, chairman of the board of the Seattle Gas Co., who was scheduled to speak on the competitive situation in the Pacific Northwest. It was regrettable that the attending delegates were unable to hear Mr. Griffith, but it was generally conceded that adequate compensation for this loss was offered in the appearance of Dr. Chin and his forceful interpreter, Lloyd Spencer, prominent Seattle advertising man. The Doctor, speaking in Chinese, confined himself to a description of gas industry conditions in his native China. To say the least, the members of the Pacific Coast Gas Association were astounded at the close parallel between conditions in the Orient and in the United States. Such factors effecting the advance and success of the industry as government competition, electric-prejudiced Roman Riders, the scattered and unco-ordinated efforts of a great many gas appliance manufacturers as compared to the driving power offered by the two large electrical Chinese appliance manufacturers, and many other industry problems could not help but call to mind the situation here in the United States. The assembled delegates were so impressed by Dr. Chin's revelations, that a movement was almost under way to send a committee to study the American conditions in the Chinese gas industry, when it was generally discovered through the removal of some false whiskers that Dr. Chin was not in reality a Chinese gas executive but an American born Chinese and prominent Pacific Coast architect. Needless to state, the clever skit will be long remembered by those in attendance as one of the purple patches in the 1937 convention.

Three other speakers completed the program of the second general session. F. U. Naylor, manager of gas sales, Pacific Gas and Electric Co., offered his paper on "Facts about Dealer Sales—their Utilization and Value." Mr. Naylor's paper was a continuation of the gold medal award analytical study offered by Bert W. Reynolds of the San Francisco utility last year.

Doris Allen of the Southern California Gas Co. in her address, "Our Hidden Talents," brought out the great and undeveloped value of women in more adequately selling and publicizing gas. It was her suggestion that the utilities train personable young women to act as hostesses to attend to the many customers who daily visit large utility offices, following the general plan which has worked so successfully with the railroads and air lines.

In the absence of Paul B. McKee, president of the Portland Gas and Coke Co., the address on the "Cooperation in Sales Promotion" was presented by John J. Winn, Jr., sales manager of the Portland utility. Mr. Winn traced generally the local results obtained from tying in with both the national advertising campaign and with the "Mystery Chef" radio broadcast. He pointed out that one out of four consumers in the Portland territory had expressed an interest in the "Mystery Chef" cook book, and suggested the production of a cooperative Pacific Coast radio program.

Advertising and sales policies again came to the fore in the papers presented before the third and concluding general session. J. S. Spaulding, advertising manager of the Southern California Gas Co. and a member of the National Advertising committee, presented a comprehensive resume of the National Advertising program as it will be carried out in its second year. In the face of increased space rates, the committee has been able to increase the number of messages substantially over the past year, and much thought and effort by the committee has resulted in a series of simplified, effective messages placed in the most far reaching media stressing "Gas is Your Quick, Clean, Economical Servant," (see *GAS*, August. 1937, p. 30).

Of great interest was the comparison of customer opinion on gas and electric service as detailed by Harrison Musgrave, assistant personnel manager of Southern Counties Gas Co., in his paper, "Sampling Customer Thought." An analysis of the mass market and the best manner of most adequately promoting sales therein was the subject of W. C. Mainwaring, general sales manager of the British Columbia Electric Power and Gas Co., Ltd. Mr. Mainwaring found this market to consist of 82 per cent of the population in his territory, and his paper concerned itself with the mapping out of a well-defined sales program, which allowed his staff of over 50 salesmen to continually cover this market at the rate of 600 calls each day. The third and concluding general session of the convention came to a close with an optimistic and kaleidoscopic picture of the "Future of the Gas Industry" by Floyd Parsons of the Robbins Publishing Co.

Chairman M. L. Klauber of the Association's Resolutions committee then placed before the general session the following important resolution:

"President Pollard in his report made at this Convention stresses the need of the Gas Industry for the perfection of plans and methods whereby the whole industry including all gas companies and appliance manufacturers may work together to expand the markets for gas and gas appliances. Mr. Pollard has forcefully pointed out that such plans must include:

"1. Increasing study of scientific gas production in an effort to lower manufacturing and operating costs.

"2. Making gas service available to low income families through the design of efficient and practical but low-priced appliances.

"3. The Joint participation of gas companies and manufacturers in a strong program of advertising and publicity.

"This Convention endorses these fundamental recommendations and pledges the Pacific Coast Gas Association to work toward their fulfillment."

The resolution as quoted was unanimously adopted.

Parallel Sessions

It is pointless in a general story of this type to go into an inadequate description of each of the many valuable papers presented before the parallel sessions. Many of these papers have been or will be treated either in full or in digest form in the pages of this publication. However, great credit is due the various chairmen of the various Association Sections for their untiring efforts and worthwhile accomplishments carried on throughout the year.

The Technical Section under Chairman Otto Goldkamp of the San Diego Consolidated Gas and Electric Co., completed a very full program. In

(Continued on Page 38)

Kitchen Planning Must Be Sold!

By DALE REMINGTON
Wisconsin Public Service Corporation

it's EASY to have as nice a KITCHEN as this
Thrifty Van Penny
will plan your kitchen FREE
come in or phone
WISCONSIN Public Service CORPORATION

ABOVE AND at right are samples of the newspaper advertising copy used by the Wisconsin Public Service Corporation in publicizing its kitchen planning service. The advertisement above makes good use of the company's unique promotional character, Thrifty Van Penny, while the advertisement at right offers a more direct appeal.

WITH nearly two years of actual layout experience in the new field of Kitchen Planning as a background, a few things have registered as permanent impressions.

You can't sit back and wait for people to rush into your store and ask to have a kitchen planned. This free service must be sold just as thoroughly as the kitchen appliances themselves. It takes more than a man with the title "Kitchen Counselor" to get the range, refrigerator, water heater, and dishwasher sales that are waiting for th alert "plus service" salesman.

So what to do? Here's what.

First: Head the kitchen planning department with a thoroughly trained, sales-minded individual. Every opportunity should be afforded him to study kitchen planning technique. Send him to electric kitchen planning conferences (no such thing being available for gas men) and to gas companies that have entered this service field. See that he meets women's magazine editors, utility and manufacturers' kitchen experts, architects, and others.

The result is a properly trained and foundationed department. Mr. and Mrs. Prospect and their architects are impressed with the fact that they are talking to an expert, that *their kitchen* is being planned by someone who knows them and appreciates their problems, and not by some distant, unsympathetic bureau.

Second: The Planner must be equipped with all necessary planning and selling tools. Planning tools consist of the necessary reference works, magazines, drawing equipment, etc. Equally important are selling tools, the side of the work that impresses the prospect. The familiar miniature kitchen units of appliances and cabinets are a never ending source of delight to the kitchen remodeler or builder. They are essential to the proper presentation of the story—they dramatize all of its details.

Third: The department must sell itself thoroughly to all of the sales people in the organization and to the home-economics trained, home service people. These individuals are the source of most of the kitchen requests and a thorough understanding of the service being offered is essential to complete success.

Fourth: The service must be sold to architects and builders. The more of these people that can be contacted by the Planner the better. Each new contact means added prospects. The complete planning service story must be told each time and the impression of capability put across. After this tell it to realtors. They frequently build homes speculatively and know most of the people who are considering home improvement. Some of these contacts may secure for you a good mailing list of people active in their new home interest. These business men have their finger on the building pulse of the community. . . . You can help them sell homes with this kitchen service—they'll help you too.

Fifth: Direct mail advertising. Company people are constantly digging up good prospects. The successful Planner must see to it that these people receive, in the mail, the complete planning story and in addition, printed information on the appliances concerned. In many instances this hurries up the planning request and always renews the impressions the salesman or Planner has left. These same people should receive appliance mailings until they make some decision on the use of their plan.

The automatic dishwasher is easily the best and most successful interest creator. Usually known as an "electric" dishwasher, simply because it uses a small motor for water action, the gas company customer wonders why the gas company is pushing it. A good load builder for gas companies because it uses more hot water than dishwashing by hand would, it adds an entirely new note to the kitchen picture and keeps the prospect constantly interested in the story being told. *(Continued on Page 30)*

GO WEST—GAS MAN—GO WEST!

Notes from the Diary of an Eastern Gas Executive Taken on an Inspection Tour of Western Properties

By E. A. MUNYAN Manager, Gas Department, Union Gas & Electric Co., Cincinnati, Ohio

IT HAS been many years since Horace Greeley gave similar advice to the youth of our nation, and his advice was apparently heeded by many of those now in the gas industry.

For many years past, very important information has been forcing itself eastward from what is commonly called the West, and has been drawing serious attention to those in the industry east of the Rockies.

E. A. MUNYAN

It has been a well-known fact that many very important engineering developments in the gas industry originated on the West Coast, and considerable attention has been created from time to time by the sales methods used on the Coast.

Everyone in the gas industry knows or has heard of the Doherty method of gas distribution as used in Denver. In more recent years the *Gas Handbook* was produced by the expert technicians of the Pacific Coast Gas Association. This book was later brought East and adopted by the American Gas Association. There have been many other evidences of the excellent methods of operation and management of the properties on the Pacific Coast.

During the months of June and July, the writer had the opportunity of visiting and observing first hand the operations of many western properties in such cities as Dallas, El Paso, Los Angeles, San Francisco, Portland, Tacoma, Seattle, Vancouver, Victoria, Spokane, Salt Lake City, and Denver.

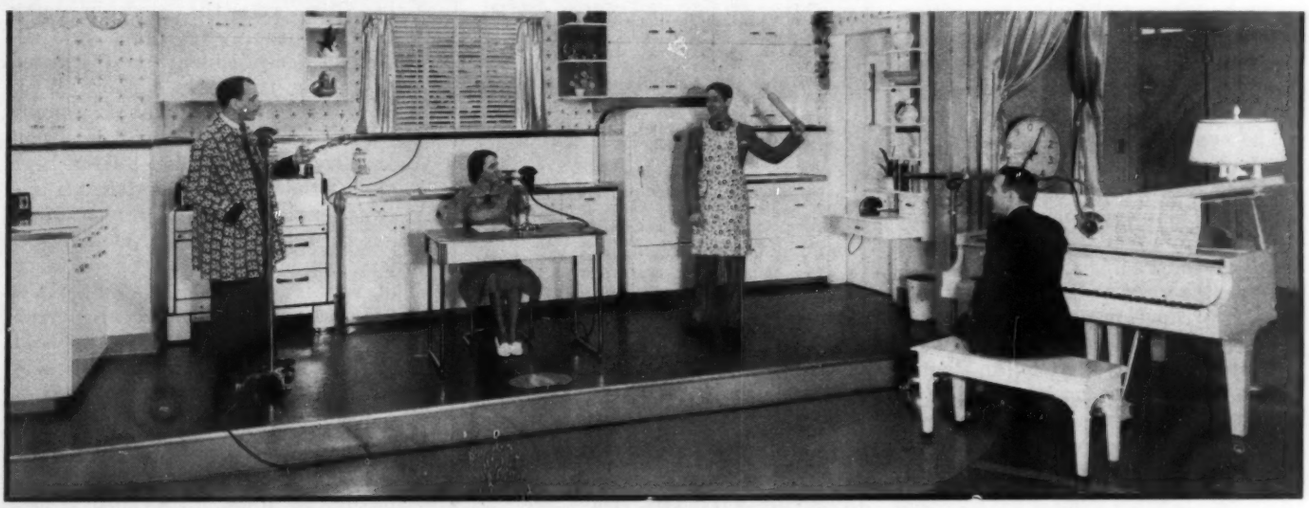
This trip, as can be imagined, was a marvelous experience, and the writer had the opportunity of talking with many men in the industry in the West from the positions of chairman of the board in some companies to the superintendents of other companies.

It was particularly interesting to note the various types of properties in the different cities, each city or state having its particular interests or problems. These problems are being solved in ways best suited to local conditions.

For instance, in Texas there is an over abundance of gas which cannot all be consumed in the state and very large quantities are being transported to other cities and states in the Middle West. However, in Southern California there are millions of cubic feet of surplus gas, and this gas is being consumed by industry in the vicinity. The oil industry is directly involved and cooperates with the gas companies in this respect, as the production of oil in California depends on the consumption of natural gas.

As one travels up the Pacific Coast, however, it is found that there is keen competition between gas and electricity. This tends to put the gas man on his mettle, and he is becoming more and more ingenious in devising ways and means to meet this condition.

The writer has been asked to give the readers of *G A S* his impressions of the various utilities as he visited them. Needless to say he will confine his comments to items of particular



A glimpse inside the Gas Hospitality House of Public Service Company of Colorado, showing a broadcast in progress. In the accompanying article Mr. Munyan describes this unique promotional asset of the Denver utility.

interest to those in the gas industry.

In Texas the thing that impresses one most is the high type of personnel and also the progressiveness of the Lone Star Gas Co. Everyone visiting this property is impressed with the influence of the excellent management in producing not only good public and employee relations, but at the continued growth of its gas property.

Southern California Visit

Southern California is a particular tonic for any gas man and when one observes how the Southern California Gas Co. and the Southern Counties Gas Co. operate, it is readily realized how they have become probably the most progressive and most successful gas properties in the country. The Southern California Gas Co. is headed by Addison B. Day, as chairman of the board, and the management is outstanding to say the least. In going down through the organization one can see the united efforts of hundreds of employees in selling gas where it not only should be sold under ordinary conditions, but also in selling it in out of the way places and for out of the ordinary purposes.

It is absolutely impossible, in an article of this type, to tell all the unusual things being done in the Southern California properties, but it would be worth many thousands of dollars to many companies to send representatives to these properties to learn how the gas business is being operated by an unusually efficient and progressive company.

The writer, expecting to visit this property only one or two days, spent better than a week there and still did not complete all observations on the methods of gas operation as practiced in the Southern California properties. It was certainly a liberal education, to say the least, and one regrets leaving such a fine property where everything seems to run like clockwork.

The next outstanding property that the writer visited was that of the Portland Gas & Coke Co. at Portland, Ore. The Portland company has, for a number of years, been considered by all of the Pacific Coast gas executives as the outstanding gas property from a production standpoint. Portland produces oil gas and in addition produces various tars and lampblack briquettes as by-products. Where others have failed in producing briquettes satisfactorily, Portland has been very successful, and markets for such by-products have far exceeded the supply. Incidentally, the revenue derived from the by-products has been a very important factor in their cost of production. The Portland property has been visited by a number of gas engineers, and a visit with Hilmar Papst, vice-president and general manager, should be considered a privilege and would greatly repay anyone, particularly with reference to the production of artificial gas.

In Washington there is also very keen hydro-electric competition, mostly of a municipal nature. The companies visited were not combination properties. Executives are putting forth their best efforts toward meeting this competition. Considerable money is being spent for advertising in one of the properties and results are being obtained rapidly. As one man put it: "They would rather go broke fighting for the business than rust out in waiting for it to appear." James Pollard, president of the Seattle Gas Co., certainly deserves a great deal of credit for his strong advertising activities not only for those in his own property, but also for his efforts in furthering the National Advertising campaign of the American Gas Association.

As is probably well known, the Canadian properties in Vancouver and Victoria are quite active in the Pacific Coast Gas Association and contribute to the efforts extended. Vancouver has an excellent Glover West plant and has been producing gas from oil in the retorts in addition to the gas produced by the retorts themselves from coal. A rather interesting paper was presented before the Canadian Gas Association at Ottawa in June, 1937, describing this plant. The paper was written by John Kirkhope, superintendent of the plant. Mr. Kirkhope, who came from England to construct the plant, returned later to operate it and is doing so very successfully.

Sales Work in Vancouver

An outstanding piece of sales work is being done at Vancouver and anyone interested might check into the company's sales methods, paying particular attention to employee sales policies.

John Keillor, the gas department manager, is making efforts to obtain a gas standard unit of comparison to a kw. hr. of electricity and has conducted considerable research for the Canadian Gas Association along this line. F. E. Reed of the same company has invented an automatic gas line draw-bridge valve which operates on the opening or closing of a draw or lift bridge. This valve, of course, is quite valuable where great depths and swift tides prevail.

Quite up to the usual standard of the Doherty organization is the public relations work being done by James L. Stone, president of the Spokane Gas & Fuel Co., Spokane, Wash. Here a hydro-electric plant is right in the heart of the city, and it is a most unusual and interesting sight to see a series of five waterfalls in the business district. The competition is terrific, but the writer saw many evidences of how the Spokane property is trying to meet this condition.

The Utah Gas & Coke Co., at Salt Lake City, was the next property visited, and the writer called on J. D. Roberts, vice-president, and learned how gas is transported from Wyoming over barren wastes to supply the growing city of Salt Lake. Salt Lake City is surrounded by the high range of the Wasatch Mountains, and it was explained that the territory often experiences terrific cloudbursts when clouds strike the mountains. The writer was told that at times boulders as large as autos are hurled down the canyons. Lo and behold, while the writer was in Mr. Roberts' office, a cloudburst occurred west of the city; and the water rushing down the canyon broke a 10-inch high-pressure line supplying a large smelter. Action then began from the vice-president down, and my last observa-

(Continued on Page 56)

Calendar

September

West Virginia Oil and Natural Gas Association—Charleston, W. Va., Sept. 8-9.

Regional Soil Corrosion Conference, National Bureau of Standards—Southern California Gas Co. Building, 810 South Flower St., Los Angeles, Calif., September 14.

Regional Soil Corrosion Conference, National Bureau of Standards—Houston, Tex., Sept. 23.

Wisconsin Utilities Association, Accounting Section—Lawsonia, Green Lake, Wis., Sep. 24-25.

American Gas Association—Cleveland, Ohio, week of September 27.

Midwest Section, National Bottled Gas Association—Cleveland, Ohio, sometime during week of September 27.

October

Chicago Exposition of Power and Mechanical Engineering—New International Amphitheater, Chicago, Ill., October 4-9.

American Society for Metals—1937 Metal Congress and Exposition, Atlantic City Auditorium, Atlantic City, N. J., October 18-21.

Mid-Continent Oil & Gas Association of Texas—Dallas, Texas, October 29-30.

November

American Petroleum Institute — Stevens Hotel, Chicago, Ill., Nov. 9-12.

Seventeenth Annual Gas School Conference—Iowa State College, Ames, Iowa, Nov. 10-13.

National Bureau of Standards—Conference on Corrosion and Protection of Pipe Lines, National Bureau of Standards, Washington, D. C., Nov. 15-17.

February, 1938

New England Gas Association—Hotel Statler, Boston, Mass., Feb. 24-25.

● C. ELDON WHITE, San Diego Consolidated Gas and Electric Co., San Diego, Calif.; in a paper, "Yield of Tar in the Manufacture of High B.t.u. Oil Gas," presented before the Technical Section at the 44th annual convention of the Pacific Coast Gas Association at Seattle, Wash., August 17-19, 1937.—(Abstract by G A S).

TABLE NO. 1. PROPERTIES OF OILS

Oil No. / Test No.	1 A-D inc.	2 E-H inc.	3 I-L inc.	4 M-P inc.
Kind of oil	Cokeless fuel oil	Diesel oil	Stove oil	50:50 fuel and Diesel
Specific gravity, 60°F.	0.9018	0.873	0.836	0.922
A.P.I. gravity, 60°F.	25.4	30.6	37.8	21.9
Lb. per gal., 60°F.	7.509	7.266	6.960	7.681
B. S. & W. by centrifuge	0.15%	0.05%	0.00%	0.70%
Heating value, B.t.u./lb.	18,833	19,212	19,525	18,752
Heating value, B.t.u./gal.	141,420	139,600	135,890	144,040
Total sulfur, %	1.385	0.322	0.385	1.074
Flash point, open cup, °F.	105	225	155	215
Fire point, open cup, °F.	175	260	170	255
Saybolt Universal viscosity:				
Room temperature, °F.	79	74	73	74
Vis. at room temp., sec.	81.0	59.5	37.0	318.0
Vis. at 100°F., sec.	60.0	42.7	34.8	153.5
Vis. at 210°F., sec.	36.7	34.6	31.7	44
Conradson carbon residue, %	0.424	0.146	0.028	4.777
Moisture by distillation, %	0.07	...	trace	0.6
Fractional distillation:	Degrees Centigrade	Degrees Centigrade	Degrees Centigrade	Degrees Centigrade
First drop	69	216	130	110
10%	220	252	185	255
20%	262	269	194	283
30%	292	283	212	304
40%	320	296	225	322
50%	347	310	234?	345
60%	364	324	242	355
70%	376	340	252	362
80%	380	358	262	365
90%	400	391	278	...
93.5%	...	...	290	...
95%	...	...	264	...
Max.	400	391	290	365
Yield	91%	97.7%	99.0%	89%
Relative cost per gallon.	...	4c	4.5c	3.25c

Yield of Tar in the Manufacture of High B. t. u. Oil Gas

THE purpose of these experiments was primarily to note the yield of tar produced from the generation of high (869 to 1436) B.t.u. gas from several oils in a laboratory cracking tube at various temperatures, determining also the heating value, specific gravity, and composition of the gas produced, and the consumption of make oil, as in gas plant practice.

C. ELDON WHITE

It was believed that any marked difference in the behavior of the various oils would lead to a basis for plant scale experiments designed to reduce the yield of tar, or uncracked oil. A desired feature of the manufacture of high B.t.u. gas would be the reduction of tar yield, since tar storage capacity is prone to be limited.

Description of Apparatus

The apparatus employed consisted of an inclined black steel ¾-inch pipe, 55 inches long, heated by three electric combustion furnaces. Thermocouples leading to a calibrated pyrometer were inserted into the respective furnaces, the temperatures of which were controlled by rheostats. The lower, outlet, end of the pipe was cooled with a water jacket, while the tar dropped into a calibrated glass receiver at the end of the pipe. The gas was conducted through a tee to a wet test meter, thence to a 5-cu. ft. water sealed holder. The oil was dropped into the upper end of the cracking tube by means of two 50 cc. burettes utilized successively.

The operation of the apparatus consisted in maintaining for each run the three furnaces at a selected constant temperature, dropping a measured volume of oil at the rate of 1.4 second per drop into the upper end of the cracking tube, generating, metering and storing three cu. ft. of gas, and measuring the resultant tar. After this, the heating value of the gas was determined by means of the Junkers calorimeter, the specific gravity with the Ranarex recorder, and the composition with an analyzer equipped with a slow combustion pipette. Finally, the combustion of the gas in a natural gas hot plate was briefly noted. The volume of gas was reduced to standard condi-

TABLE NO. 2. NUMERICAL RESULTS

Test No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Oil No.	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
B.t.u. of gas made	1399	1008	1199	905	1370	1165	1022	869	1436	1202	1031	921	1406	1205	1042	908
Make oil, gal/M c.f.	18.34	13.71	15.53	13.24	15.94	13.99	12.55	11.44	16.98	14.35	12.72	11.65	17.56	15.26	13.55	12.18
Gas, c.f./gal.	54.50	72.95	64.37	75.56	62.72	71.47	79.69	87.46	58.89	69.68	78.59	85.86	56.99	65.54	73.84	82.10
Tar, % of make oil	28.6	17.5	25.2	14.0	24.1	21.8	18.9	12.3	26.2	23.2	18.6	15.2	24.4	21.1	17.5	13.0
Tar, gal/M c.f.	5.25	2.40	3.91	1.86	3.85	3.04	2.37	1.41	4.45	3.33	2.37	1.77	4.29	3.22	2.36	1.59
Gas analysis:																
CO_2 %	0.3	0.5	0.4	0.6	0.3	0.4	0.3	0.4	0.3	0.6	0.5	0.5	...	...	...	...
C_nH_m %	36.0	19.6	28.1	14.1	37.3	29.1	21.1	12.5	40.1	29.9	21.2	14.5	...	...	...	...
O_2 %	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	...	...	...	...
CO %	0.3	0.4	0.7	0.8	0.6	0.5	0.5	0.6	0.4	0.4	0.4	0.4	...	...	...	...
H_2 %	1.8	24.7	12.0	32.6	4.0	14.0	24.7	37.1	1.3	11.6	23.4	32.8	...	...	...	...
CH_4 %	61.9	54.7	59.3	50.3	57.3	55.8	53.0	49.0	57.8	57.2	54.5	51.6	...	...	...	...
N_2 %	—0.5	—0.1	—0.6	1.4	0.2	0.0	0.2	0.2	—0.1	0.1	—0.2	0.0	...	...	...	...
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	...	...	...	...
Furnace temperatures, °F.:																
Bottom	1307	1523	1408	1588	1352	1459	1544	1628	1309	1436	1545	1610	1331	1434	1544	1609
Center	1308	1525	1414	1588	1351	1459	1543	1631	1307	1436	1544	1609	1328	1434	1544	1609
Top	1306	1521	1415	1586	1351	1457	1544	1626	1308	1436	1543	1600	1328	1432	1544	1608
Mean	1307	1523	1412	1587	1351	1458	1544	1628	1308	1436	1544	1606	1329	1433	1544	1609
Oil flow, sec/drop	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Gas sp. gr. (sat.)	...	0.587	0.722	0.52	0.843	0.695	0.597	0.495	0.905	0.721	0.604	0.530	0.865	0.741	0.610	0.543
Combustion in natural gas hot plate	good	good	good	good	good	good	fair	fair	good	good	fair	fair	...	...	...	...
Lampblack Formation in generator	none	none	none	much	none	none	none	moderate	none	none	none	none	heavy	heavy	heavy	heavy

tions of 60°F., 30 inches of mercury, saturated with water vapor.

Four kinds of oil were used:

1. The condensate resulting from the complete distillation of fuel oil to dryness at atmospheric pressure, the resulting coke being rejected. A small cracked fraction was obtained near the end point.

2. Diesel oil, grade 4A.

3. Stove distillate, grade No. 1.

4. A mixture of equal volumes of fuel oil and Diesel oil.

The properties of these oils are shown in Table No. 1. Table No. 2 shows the numerical results obtained.

It is surprising to note that three oils differing in specific gravity, distillation range, and other properties as much as do oils Nos. 2, 3, and 4 should produce exactly the same number of gallons of tar per M c.f. of gas. No. 1, an unavailable, artificially made oil yielded more tar than the other three.

The relation between the yield of tar per centum of make oil and the heating value of the gas made is interesting. At first sight it might appear that No. 4 oil yielded less tar than No. 3, but actually more of No. 4 oil is required to produce an M c.f. of gas; the seeming advantage is thus cancelled. The point is that part of No. 4 oil is wasted as lampblack in the generator.

Considering the number of gallons of make oil per M c.f. of gas made, three trends are evident: No. 1 oil is the least efficient, not because of lampblack formation (for its residual carbon content is low), but because it delivers the most tar. Nos. 2 and 3 oils (Diesel and stove distillate) are indentical in performance, and the most efficient. No. 4 oil (50:50 Diesel and fuel oils) is intermediate in efficiency; its lessened gas yield is doubtless due to its high residual carbon content, *i.e.*, to lampblack formation in the generator. Hence the best efficiency depends upon low residual carbon content and low tar yield, but is independent of the specific gravity, boiling range, and other such properties of the oil.

It is noteworthy that regardless of the type of oil utilized, the composition and the specific gravity of a gas is practically constant at any given heating value.

Although oils Nos. 2, 3, and 4 varied materially in their physical properties, at any given temperature each produced gas of the same heating value; but oil No. 1 required a temperature 30°F. lower than these throughout the B.t.u. range studied.

Increasing the Efficiencies of Gas Power Boilers

● W. W. GERMAN, The Montana Power Co., Butte, Mont.; and WORDEN POPE, Public Service Co. of Colorado, Denver, Colo.; in papers presented to the Industrial Gas Sales Forum, Natural Gas Department Convention of the American Gas Association, Kansas City, Mo., May 10-14.—(Abstract by G A S).

IT is simple to secure satisfactory efficiency on a boiler operated at or near rating with a continuous non-varying load; unfortunately, in practice such a condition rarely arises. Load swings of varying degree are encountered, shut downs, at night, week-ends, etc., must be met, and the average over-all efficiency suffers as a consequence unless corrective measures are taken.

Selection and application of the proper type of combustion control is the first step toward increasing the over-all efficiency of the plant.

Certain other methods of lowering the over-all fuel bill are as follows:

The first of these methods involves the use of refractory insulating lining. On four of such jobs installed about 12 months ago, a careful check was made of the results. Two installations were made wherein the burners operate at a maximum of 4½ lbs. gas pressure under throttling control. The position of the damper is controlled by the draft which is directly balanced against burner manifold pressure. Fuel input is controlled by conventional fuel governor, actuated by steam pressure. A 4½-inch thick lining of insulating refractory, tied in with fire brick at intervals, was placed at the time the conversion was made. One job is used for a small amount of district heating and subject to shut-down for several hours during the middle of the night. The other job furnishes chiefly process steam in a cereal mill, together with incidental heating.

Experience on these two jobs indicates a remarkably quick load pick up, lessening of radiation losses, more uniform firebox temperature, conducive to greater radiation transfer throughout the length of the boiler, and a better fuel comparison than we would expect on similar jobs without the refractory lining. One laundry which had used gas fuel for a year was equipped with this lining, no other changes made, and the resultant saving in direct fuel cost amounted to between 8 and 10 per cent. This job was an HRT Boiler, had upshot burners and off and on control. A barometric draft control, motor operated, was in use. A month before the new lining was installed, a water meter and suitable test instruments were installed to secure a definite operating check on the job, before and after. A second laundry job, with straight shot burners which had utilized gas fuel for the past three years was similarly changed. The two jobs were quite similar in controls, etc., except for the burners and the same improvement in results

The refractory insulation used was the 2600 grade Quigley Insulbrix and repeated checks on the fireboxes of these jobs have shown no spalling or disintegration. One characteristic which has pleased the customers has been the quick pick up and rapid response to changes in load. The steam pressure, after overnight shut-down, has always been considerably higher and as a result the boiler has been on the line much sooner in the morning.

Another method of cutting fuel bills has been through using thermostatically controlled zoning valves on steam heating installations. One typical case involved a central heating installation serving five isolated school buildings, grouped about the boiler plant. Zone valves were installed four years ago and have more than justified their cost, even though considerable rearrangement of the piping was necessary on two of the buildings.

An interesting situation arose at a meat packing plant which had four 250 hp. boilers installed, two or three of which normally handled the load. Since their work proceeded on a schedule, it was possible to anticipate heavy load days and the plant personnel were finally educated to operate with an absolute minimum of boilers, operating at full load or slightly over, rather than to coast along on three boilers at reduced rating. A definite fuel saving results.

Air Infiltration on Power Boilers

AN important point is that of keeping air leakage through a boiler setting at a minimum. From an efficiency standpoint, this loss can be far greater than the total radiation losses, if the boiler setting is extremely porous. From a performance standpoint, this leakage air can be the source of innumerable troubles, primarily that of causing pulsation. Pulsations or very rapid and heavy vibrations can be caused by operating a boiler with a deficiency of air in the combustion chamber and permitting the unburned gases to contact the leakage air and ignite with rapid explosions at some point in the furnace where it is possible for the leakage air to contact the unburned gases.

One of the larger Denver installations, where there was being generated approximately 400 hp. on a Sterling type boiler, a very large crack developed around one of the upper steam drums. The operator, in an effort to bring his CO_2 content in the flue gases up to a reasonable figure, reduced the air supply to the burner, thus creating a deficiency of air in the combustion chamber. The result was that severe vibrations were set up in the boilers, when the unburned gases contacted the leakage air. Each explosion retarded the draft instantaneously and the pulsations increased in intensity until a dangerous condition was set up.

On another installation the setting appeared reasonably tight, but when the tests were made, excess air of approximately 12 per cent in combustion chamber, and 85 per cent at the outlet of the boiler, was disclosed. Carefully sealing this boiler with a plastic boiler cement reduced the excess air in the stack to about 20 per cent, but kept the excess air in the combustion chamber at 12 per cent, thereby increasing the boiler efficiency by 4.5 per cent. The stack temperature was about the same in both cases, which would indicate that the leakage air was entering the boiler rather uniformly over the entire setting. This boiler also entered into serious vibrations if the excess air in the combustion chamber was reduced below 10 per cent.

Leakage air also decreases the fuel burning capacity of a boiler, and its stack, because all the air passing through the boiler cannot be used in burning of the fuel.

Gas Lighting—Commercial, Industrial, and Flood

● C. A. THORP, Southern California Gas Co., Los Angeles, Calif.; in the report of the Sub-Committee on Gas Lighting presented before the Technical Section at the 44th annual convention of the Pacific Coast Gas Association, at Seattle, Wash., August 17-19, 1937.—(Abstract by G A S).

AS A result of the various investigations and observations made by the Sub-Committee on Gas Lighting during the past year and a half the following data are presented on two types of gas lighting; namely floodlighting, and indoor commercial and industrial lighting.

Floodlighting

As no precedent for installation procedure was available for this equipment a study was made comparing these gas lamps with existing equipment in use for this type of lighting. A summary of this study is shown below.

Gas Arc (No. 3000 Lamp).

(From Report of Electrical Testing Laboratory)

Lumens: total 0°-180° 23336; down 0°-90° 19662.
Gas Consumption 38,500 B.t.u./hr.
" " (1120 B.t.u. gas) 34.5 cu. ft./hr.
" " (550 B.t.u. gas) 70. cu. ft./hr.
Lumens per B.t.u. 0.606
Electric consumption of blower, 66 watts
Light intensity is low, therefore does not require opaque glassware.

Electric Mazda Lamps (1000 Watts)

(Report of Electrical Testing Laboratory)

Lumens: total 0°-180° 20700; down 0°-90° 15732 RIM dome; clear lamp.
Energy Consumption 1000 watts/hr.
Energy Consumption 3412 B.t.u.
Lumens per B.t.u. 6.0
Light intensity very high; requiring opaque glassware which probably reduces light available to 90 per cent. Downward efficiency 0°-90°: with clear glass RIM Dome 76 per cent or 15,732 lumens; with opaque glass about 66 per cent or 13,662 lumens.

Comparison of 0°-90 Effectiveness of Illumination (Downward)

Gas 19,662 lumens with use of 34.5 cu. ft. 1120 B.t.u. gas/hr. or
70. cu. ft. of 550 B.t.u. gas/hr.
Electric 15,732 lumens with use of 1 kw. hr.
For downward illumination equal to gas arc would require:
19,662/15,732=1.25 kw. hrs. using clear lamp
or
19,662/13,662=1.44 kw. hrs. using RIM dome with white bowl lamp.
On the basis of 1.25 kw. hrs. being equal to 34.5 cu. ft. of 1120 B.t.u. gas, 1 kw. hr. would be equivalent in lighting effectiveness to 27.6 cu. ft. of natural gas.
Or 1 kw. hr. would be equivalent to 56 cu. ft. of 550 B.t.u. gas.

TABLE NO. 1. SUMMARY OF OPERATING DATA FOR NO. 3000 HUMPHREY GAS LAMPS BASED ON FIVE INSTALLATIONS (THREE BRACKET TYPES, TWO POST TYPES)

Average Burning Hours per Month	291
Gas Consumption per Month, cubic feet*	8730
Electric Consumption per Month, watts**	17460
Mantle Life, Burning Hours, Average	220
Frequency of Service Calls per Month, Average	1.64
Number of Mantle Changes per Month, Average	1.48

Average Monthly Cost (exclusive of transportation)

$8.30=$0.0285 per burning hour or (for energy	$0.01615
291 (for maintenance	.01232
Total	$0.02847
Gas @ $0.50 per M c.f.	$4.36
Electricity @ $0.02 per kw. hr.***	.35
Labor @ $0.75 per hour	1.23
Mantles @ $0.45 each	1.33
Globes @ $4.30 each	.52
Pilots @ $3.09 each	.25
Motors @ $8.50 each	.26
	$8.30

* Based on 33,700 B.t.u. per hour, or 30 c.f.h. of 1120 B.t.u. natural gas.
** Obtained by multiplying burning hours by capacity of the supercharger (60 watts).
*** Average Pasadena, Calif., power rate.

TABLE NO. 2

Summary of Operating Data for No. 500 Humphrey Indoor Gas Lights*

30-Day Calendar Month Including Sundays

Burning Hours	170
Gas Consumption, cu. ft.	3,772
Electric Consumption, watts	10,197
Mantle Life, Burning Hours	170
Frequency of Service Calls	2.6

Average Monthly Cost

(exclusive of transportation)

Gas @ $0.69 per M c.f.	$2.60
Electricity @ $0.0413 kw. hr.	.42
Labor	1.87
Mantles	1.40
Globes	1.17
Total	$7.46

7.46=$0.04388 per burning hour or:
170

For Energy	= $0.0177
For Maintenance	= 0.0261
Total	$0.0438

* Located at Swanee Stove Works, 2538 West Pico Boulevard, Los Angeles, Calif.

Actual installations which have been made indicate results more favorable to gas lamps than is shown by the above summary. Many gas companies in the New England States are making installations on the basis of 1 No. 3000 gas lamp replacing 2 kw. of electric lighting. They claim higher intensities of illumination are obtained after the installation of the gas lamps on this basis, than was obtained with the electric installation immediately before replacement. These results appear to be due to the fact that the gas installation is a maintained lighting service and is kept at, or near its initial efficiency by the frequent servicing and also to the lower surface brightness of the gas lamp which allows it to be installed at lower heights.

Operating and servicing costs, while differing for each locality, are indicated by the data shown in Table No. 1. These data have been averaged for five of these lamps; three of the bracket type and two of the post type. The figure of 2.8c per burning hour would probably be decreased by using the more advanced type of gas pilots in place of the electric pilots which have been in use on these lamps. Installations composed of more than one lamp at the same location would also lower the labor costs shown. It will be noted in the operating data that the B.t.u. input has been lowered to 33,700 B.t.u. per hr., or 30 cu. ft. of 1120 B.t.u. natural gas. This de-

creased input now appears to be general practice in all parts of the country and is done for the purpose of minimizing servicing. It has been found that mantle life is materially increased with this lower B.t.u. input and that there is less maintenance in connection with pilots, globes and other parts of the lamp as well. On the basis of 1 No. 3000 lamp being equivalent to two kws. of electricity, it will be seen from the data that this is equivalent to an electric rate of 1.4c per kw. hr. under the conditions shown, exclusive of fixed charges.

While practically every conceivable installation policy for gas flood lights is in use, the four main ones are (1) monthly rental charge for equipment, (2) no charge except that in rate to cover equipment, (3) charging the customer for labor and material for installing but capitalizing the lamp equipment itself; fixed charges being covered in the rate, and (4) charging for the complete job. It appears that as companies gain more experience with these installations there is a distinct tendency to change the original installation policy to number 3 as there is a distinct advantage in having the customer financially interested in the installation. A minimum monthly charge per lamp is included in the rate in practically all cases.

Indoor Commercial and Industrial Lighting

For indoor lighting the number 500 Humphrey Indoor Hi-Power Gas Lamp, while it lacks some of the advertising value associated with flood lighting, has possibilities in some localities. This equipment uses the premix fan similar to the one in the outdoor unit, the fan delivering the gas-air mixture to four single mantle lamps which comprise one unit. While at the present time globes are available in only two shapes for this unit, both of which give nearly equal distribution of light in all directions, it appears from the installations which have been made, that in general, one unit of these lamps is equal to 1 kw. of electricity. This unit has a gas consumption of 24,000 B.t.u. per hr.

Operating and maintenance data for a unit covering a period of approximately 18 months is shown in Table No. 2. While the figure shown per burning hour is considerably higher than that for the outdoor lamp, it is noted that this figure is for one unit only, installed on a consumer's premises. An installation of several of these units at one location would materially reduce the labor item shown due to the time required to burn in mantles.

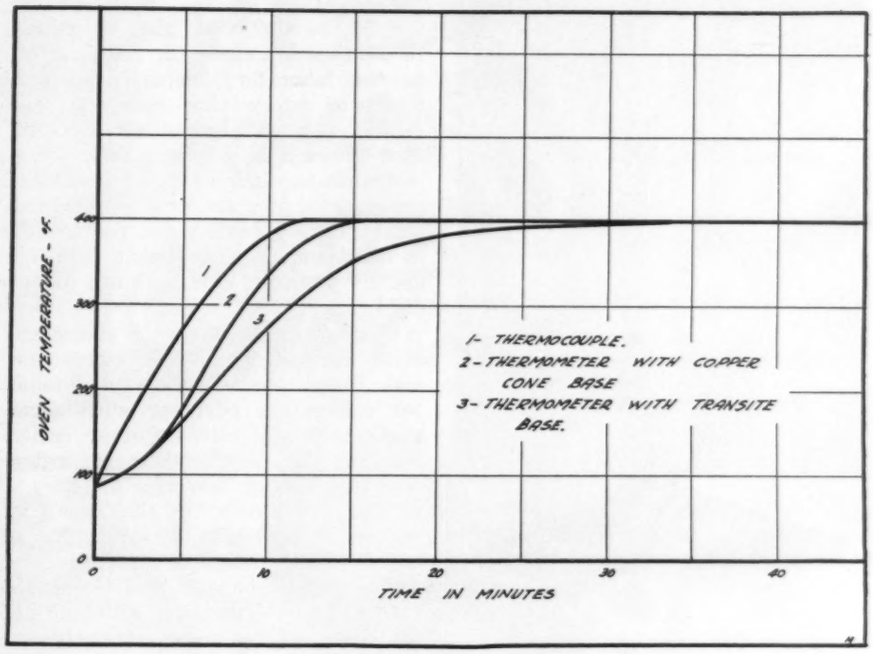


FIG. 1.

Calibration of Gas Range Oven Thermostats

● **E. H. MOHR, Los Angeles Gas and Electric Corp., Los Angeles, Calif.; in paper to Gas Appliance Testing Sub-Committee, Pacific Coast Gas Association Spring Technical Conference, Los Angeles, Calif., March 18-19, 1937.—(Abstract by G A S).**

THE temperature variation in an oven is determined by several factors; namely, the design of the burner, the location of the vent, the method of circulation of the hot gases, the location and type of the sensitive element of the heat control and the accuracy of the heat control. The two types of ovens most generally used are the "circulating" in which the hot gases enter the oven compartment along the upper half of the side walls, circulate in the ovens and leave through the vent opening in the top or rear; and the "semi-direct action" in which the gases enter the oven through openings in the oven bottom, circulate in the oven and leave through the vent opening in the top or rear.

E. H. MOHR

The composite influence of the various factors on the uniformity of the product can best be determined in any particular case by a practical baking test similar to the test specified in the American Gas Association Approval Requirements for gas ranges under the heading "Oven Heat Distribution." The effect of the type and location of the sensitive element of the heat control can be noticed in the time to reach equilibrium at a given temperature, and an element located near the top center of the oven and supported on knife-edge supports will give the best results. In other words, the sensitive element should have the minimum amount of material to be heated, should be removed from intimate contact with the metal lining of the oven as nearly as possible, and should be located in the path of the circulating gases in the oven.

The accuracy of the oven heat control can be divided into two parts,

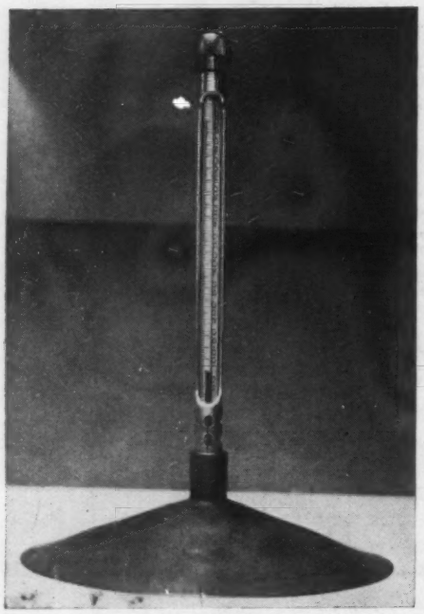


FIG. 2.

the marking of the control dial and the actual oven temperature at a given dial setting. The marking of the control dial, in most cases, is quite satisfactory and any non-uniformity may be traced to installation in the range rather than to the thermostat manufacture.

The maximum permissible dial error (difference between oven temperature and dial setting) will depend upon the type of cooking. It is generally agreed that meats of all kinds would not be affected by errors as high as 50 degrees F. in thermostat calibration. Biscuit recipes are somewhat flexible regarding time and temperature and are usually established by the individual housewife to suit her own needs or preference in her particular oven. However, unsatisfactory cake and pie baking cause the great majority of home service complaints so these two cooking operations were chosen for an investigation of the maximum permissible dial error. It was indicated by these tests that the permissible dial error should not exceed plus or minus 15 degrees F. In the event an adjustment of the dial should be required, the serviceman may have to interpolate between dial markings to set the dial to correspond to the oven temperature. It is conceivable that certain baking operations may require temperatures other than those ordinarily chosen for dial markings. In either case, a thermostat dial marked at 10 degree intervals has a distinct advantage over one marked at 25 degree intervals.

Calibration of the heat control within the limits of plus or minus 15 degrees F., either in the field or in the laboratory, depends upon a means of determining accurately and rapidly the actual oven temperature at a given dial setting. Laboratory instruments, such as potentiometers, pyrometers, etc., are usually designed with accuracy rather than portability in mind and the investment required usually prohibits extensive use in the field.

Of the various types of thermometers devised for use in ovens one was found to be readily adaptable for calibration purposes with some modification. It consists of an easily read special mercurial thermometer with the tubing designed to show a reflected red color in the mercury, encased in protective armor, and provided with a suitable carrying case and a transite base to hold thermometer when used in oven. Although all of these features were extremely desirable, it was found that the protective armor and transite base caused the thermometer to be 19 minutes slower than a potentiometer and thermocouple in indicating equilibrium temperature in a fast oven (see Fig. 1). A conical copper base to be used in conjunction with the protective armor (see Fig. 2) was developed, in which the hot gases are streamlined past the bulb of the thermometer, thus reducing the time lag to 3 minutes. The cost of the thermometer and copper base are well within reason and the combination has been accepted for general field use. For the man who handles the more difficult calibration service calls, a portable pyrometer was developed, as described in *Gas*, May, 1936, page 82.

It is possible to divide the various heat controls into several major classifications with respect to performance and to issue specific instructions regarding the calibration for each classification. Based on laboratory and field observations, the following general procedure was developed for field calibration of heat controls using the serviceman's thermometer: with the thermostat dial set at 400 degrees F., ignite the oven burner; the calibration should be made by reading the thermometer at the end of 25 to 50 minutes (depending upon the make of range and type of control) with a check reading five minutes later. The thermometer should be located as nearly as possible at the geometric center of the oven and should be placed so that the reading can be made with the minimum door opening.

Kitchen Planning Must Be Sold!

(Continued from Page 22)

Sixth: Newspaper advertising should be used after the department has itself well established with a list of satisfied customers and in a position to take new ones on as fast as they come in for information. It tells its story best if it illustrates model kitchens. Here's where the American Gas Association national advertising campaign comes in, for a score of fine photos are available at slight cost.

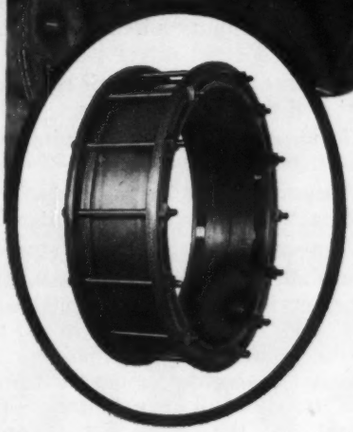
You gain in civic prestige by this type of newspaper advertising. If you have electric company competition, your company is impressed on the public as more progressive and alert than its competitor. Your salesmen pick up unexpected appliance prospects. Bigger and more important than all of these, you give the impression of added service to your community and make friends.

Seventh: Don't forget your window and floor displays. Keep the story of this excellent service before the people who know you the best . . . those who visit you. Show them planned kitchens and they'll want one of their own.

Eighth: Sell the service to your company employees, a good proportion of whom will build or remodel each year. This can be done through bulletin board postings of your newspaper ads and the usual departmental meetings and other contacts. Usually employees are branded the worst complainers when the merchandise they get from their sales department at a special price shows a porcelain flaw or a misadjusted burner. Hand them this free service and they'll talk your Planner into a lot of overtime work.

Ninth: Use kitchen planning as a selling tool — forget your altruistic home service ideas. This isn't a thing *everyone* can use . . . you'll find those that do well satisfied to buy the merchandise you suggest. No one knows more about kitchen requirements than the typical American housewife, and less about how and what to do about it. Give her a lift and she'll be a friend for life.

"IT'S REMARKABLE HOW EASY THEY TAKE THE CURVES ON A DRESSER-COUPLED LINE"



CURVES . . . with STRAIGHT pipe, are a simple matter with Dresser Couplings! Both horizontal and vertical deflections of the pipe can readily be made—without harm to the coupling or without affecting its permanent tightness in any way!

This advantage—the result of Dresser *flexibility*—saves construction time and money by eliminating many field bends, special fittings, and delays. Today, as for almost 50 years past, it is the *practical* answer to problems of curvature, grades, trench irregularities, etc.

NOTE TO READER

This is the seventh in a series of advertisements dramatizing one engineer's experience with his first Dresser-coupled line. For the complete story, write for Bulletin 351.

S. R. DRESSER MFG. COMPANY, BRADFORD, PA.

In Canada: Dresser Mfg. Company Ltd., 60 Front Street, W., Toronto, Ont.

The Utility Laboratory Aids the Salesman

● **R. V. DAVIS, Southern California Gas Co., Los Angeles, Calif., in a study entitled, "The Value of Utility Gas Appliance Testing to a Sales Department," which is a portion of a paper on the utility testing laboratory presented before the Annual Convention of the Pacific Coast Gas Association at Seattle, Wash., August 17-19, 1937. Mr. Davis' discussion continues an examination of this topic which was started in the August issue of GAS with a review on the gas company testing laboratory by R. I. SNYDER of the Southern California Gas Co. This topic will be further outlined in the October number of GAS by GEORGE WEHRLE of Public Service Co. of Colorado.—(Abstract by GAS).**

DURING the past several years, it has been convincingly demonstrated that facts are becoming increasingly important tools for local utility appliance salesmen and local utility appliance sales promotional men. Competition has made it imperative that salesmen know the facts concerning gas and gas appliances and have a general knowledge of competitive appliances. A utility which conducts a gas appliance testing laboratory can provide these facts.

R. V. DAVIS

Laboratories of appliance manufacturers whose products are sold in the national market, college and independently managed laboratories, and the American Gas Association Testing Laboratories, all provide valuable facts for gas utilities. Why, in view of this fact, is a local testing laboratory of value? Manufacturers are searching for improvements of their products or using their established research data as a basis for advertising; independent laboratories usually are hired by a manufacturer to work on specific problems; and college laboratories are usually engaged in purely scientific research. Obviously much of the information received from these sources does not fit local conditions. The American Gas Association Testing Laboratories, from whose reports much valuable data are secured by utilities, bases the award of its Blue Star Seal of Approval on minimum requirements for performance, safety and construction. A local utility testing laboratory is not affected by any such handicaps.

Value of Local Reports

Sales procedures of various gas utilities differ. Many points necessary to make a complete sales presentation by local methods not furnished by national studies, can be supplied by local reports.

Data relative to B.t.u. inputs most desirable for local operating conditions from which to compile accurate operating costs, time studies, heat distribution charts, safety factors, etc., are obtainable in usable form.

Actual performance tests on ranges by members of the home service department are valuable because appliances are adjusted and installed in the laboratory by men trained by local utilities and in the identical manner that local home installations are made.

Facing severe competition, salesmen need to know the optimum performance, safety and construction of appliances.

The adoption of a standard report form for ranges, one for water heaters and one for space heating appliances provides true comparisons of appliances tested. These are of value to executives who formulate sales policies. Comparisons on standard report forms between gas and competitive appliances are of direct value to field salesmen.

Upon authorized request made by the sales department, special tests can be made to determine answers to specific sales problems. Claims made by competitive advertising relative to performance of gas and competitive appliances can be checked.

Exaggerated claims relative to construction, performance, safety and economy of an appliance, even though innocently made by a salesman to a customer, greatly increase the work of keeping the appliance sold. Data from the laboratory, correctly presented to both sales and service men, simplify the service department's job of keeping the customer sold on modern appliances, modern gas service.

The laboratory report can be adapted for the company sales manual under the following topics:

1. Monthly pilot consumption on gas ranges: This table shows amount of gas per month necessary to maintain pilots as well as average monthly cost under local conditions and rates.
2. Water boiling speed tests: Time required by different size gas top burners and top electric elements in bringing various quantities of water to a boil. From these figures, correct local cost comparisons are calculated.
3. Effect of various types of pans on top burner efficiency.
4. Baking, roasting, broiling and top burner cookery. Tests made by home service department.

Many facts discovered by the laboratory can be used as a basis for discussion in sales educational meetings. Information which creates enthusiasm, sells salesmen on their product and gives correct answers to the various local problems is valuable.

Testing Competitive Appliances

Because of local competitive conditions, an increase in the number of competitive appliances tested would provide useful data for the sales department. The maximum service which the modern home should receive from a 1937 gas appliance has been definitely established. For example, cooking today should possess certain attributes, and a report might include the following data concerning both ranges:

Simplicity: General data including visual inspection, burner arrangement, broiler and oven utility, ease of operation, location of valves, controls, etc., objectionable features.

Certainty: Controllability of heat. Heat distribution charts for ovens and top units. Determination of temperature control accuracy.

Time Releasing: Automatic features, clock, minute minder and lighters.

Coolness: Surface, utensil compartment and floor temperatures.

Cleanliness: Ease of cleaning entire range.

Fastness: Water boiling tests. Preheating time for oven and broiler.

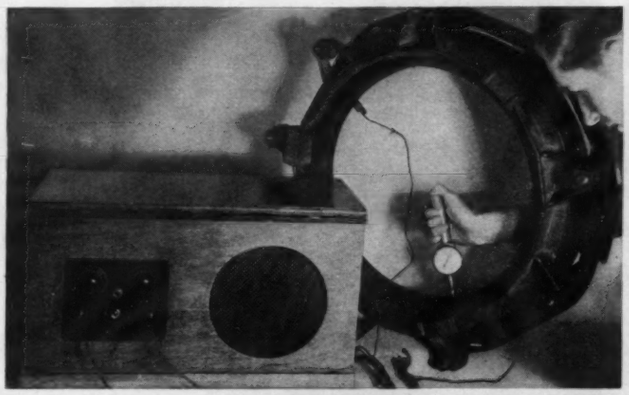
Economy: Comparative cost studies.

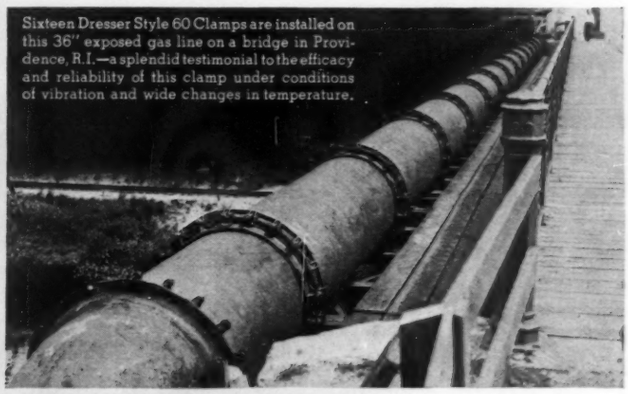
In addition to the above data, the home service department should conduct comparative cooking tests reporting on the same seven points.

To date, laboratories have not been used to the fullest extent for the benefit of the sales departments. What has been done, however, proves conclusively that the utility gas appliance testing laboratory has a definite place in sales education and training.

Here's How

TO BE CERTAIN OF CLAMP RELIABILITY!

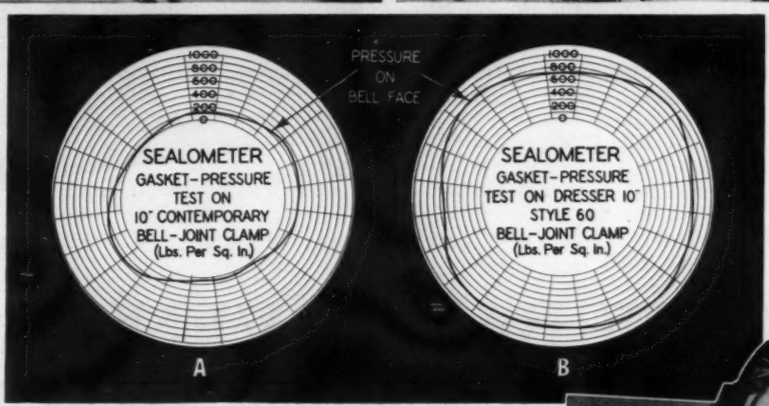




Sixteen Dresser Style 60 Clamps are installed on this 36" exposed gas line on a bridge in Providence, R.I.—a splendid testimonial to the efficacy and reliability of this clamp under conditions of vibration and wide changes in temperature.

IMPERFECT SEAL

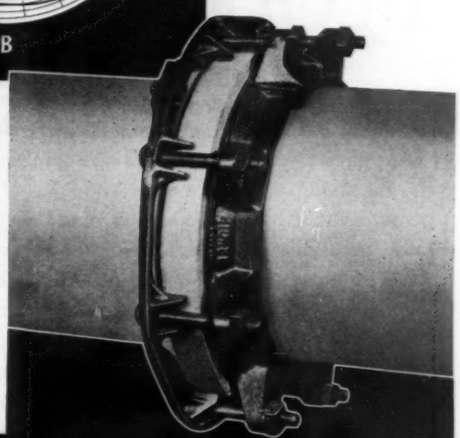
Chart "A" shows that a contemporary make of clamp under test had a hidden weakness, revealed by the Dresser Sealometer, pictured above. This "weak spot" had a gasket pressure of only 10 pounds per sq. in. And the "high spot" was only 275 pounds.


PRESSURE ON BELL FACE
SEALOMETER
GASKET-PRESSURE TEST ON 10" CONTEMPORARY BELL-JOINT CLAMP (Lbs. Per Sq. In.)
SEALOMETER
GASKET-PRESSURE TEST ON DRESSER 10" STYLE 60 BELL-JOINT CLAMP (Lbs. Per Sq. In.)
A
B

PERFECT SEAL

Chart "B" shows that the Dresser Style 60 Clamp under test had no hidden weaknesses—since the lowest gasket-pressure point was way up to 550 pounds per sq. in. Style 60 design is backed by Sealometer tests!

The first chart ("A") above shows how easy it is to be fooled by a bell-joint clamp whose *design* has not had the benefit of the "searching inquiry" made possible by the Dresser Sealometer. • The second chart ("B") shows how easy it is to be *certain* of clamp reliability, by using clamps designed (as Dresser Style 60's are) with full knowledge of gasket pressures. Folder 3612G reveals interesting facts. *Send for it.*



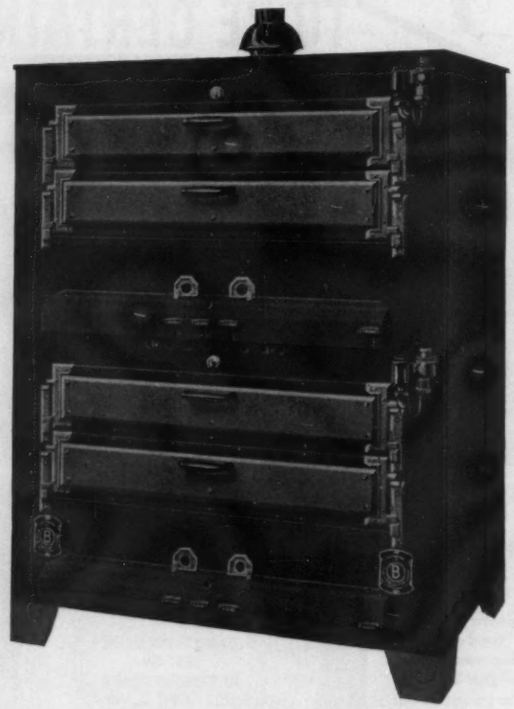
DRESSER BELL JOINT CLAMPS *Style 60*

S. R. DRESSER MFG. COMPANY, BRADFORD, PA. *In Canada:* Dresser Mfg. Company, Ltd., 60 Front St., W., Toronto, Ont.

SATISFIED CUSTOMERS
Your Best Salesmen

WHETHER IT BE **GALLUSES** OR **GAS** YOUR CUSTOMER'S SATISFACTION DETERMINES YOUR FUTURE SALES.

The No. B4-22, shown at right, provides more than 2.5 square feet of baking hearth area per square foot of floor space occupied. In many bakeries, antiquated, oversized and uncontrolled equipment can be profitably replaced with one or more of the many efficient Blodgett Ovens.



BLODGETT BAKE OVENS *Stay Sold*
Because They Satisfy the Most Critical Baker

Blodgett Bake Ovens are models of perfection—the outcome of many years of experience. In them are combined all the features so essential in the saving of time, money and gas. The new Roaster-Baker has two separate compartments and is made in two sizes. Each compartment may be used equally well for either baking or roasting. Other features include heavy insulation and automatic control of temperatures which represent a saving in fuel. No gas is ever wasted in a Blodgett Oven. Baking or roasting at different temperatures can be done at the same time. This saves the time of the operator who can be using two different oven temperatures and bake or roast two entirely different products at one time; and temperatures can be changed quickly to meet the variety of needs.

Don't Overlook These Features

The Blodgett Oven bakes practically all kinds of food in the usual quantities and with great uniformity. It is easy to install, easy to operate, well insulated and saves time, money, labor and gas. By lifting a small latch, the door and shelf can easily be removed making double space available for roasting large meats, and the economy of operation is surprisingly low.

MANUFACTURERS OF A COMPLETE LINE OF PORTABLE OVENS FOR BAKING AND ROASTING. MAKERS OF QUALITY OVENS FOR NEARLY 90 YEARS. MEMBERS OF A. G. A.

The G. S. BLODGETT CO., Burlington, Vermont

SELLING GAS AND GAS OVENS TO BAKERIES IN SYRACUSE

By WILLIAM C. AGNEW The Syracuse Lighting Company, Inc.

AN expert trout fisherman is an excellent salesman. Whether the adept trout fisherman realizes it or not, every catch is a sale, and his sales are made because he studied his streams, carefully chose his pools, and then enticed Mr. Trout with every lure necessary in order to land him.

W. C. AGNEW

So it is with selling gas to bakeries. We don't walk haphazardly into an unfamiliar bakery and expect to land a gas job by proclaiming repeatedly that gas is best. This business should be pursued with the same diligence and study with which the trout fisherman prepares himself.

As the expert trout fisherman studies the streams to learn the most likely spots, so have we here in Syracuse studied the bakery gas market to determine what bakeries or class of bakeries will yield the greatest results. Market analysis is nothing new. A careful survey of the bakery business has shown us where to concentrate our efforts.

Although some selling has been attempted at the time of the survey, our principal objective has been to determine the baker's equipment, his present fuel cost, and other conditions in favor of or against the use of gas. With these facts on hand, we can classify all bakers into two groups and then proceed to sell them according to their classification.

These groups are apparent-conversion jobs and new ovens. We have found that steel portable ovens such as Middleby-Marshall and Hubbard can be converted to gas and operated at our rates* for very little more and often times less per month than the anthracite cost†. Bakers who own such ovens as these and whose type of work is such that nothing could be gained by the installation of a new oven, are placed in the "conversion job" prospect file. Every oven of this type is an excellent gas prospect.

When ovens, either fired by gas or a competitive fuel, are found to be in poor condition, or are of such a construction that they would not lend themselves readily to conversion, we class them as new oven prospects.

There is only one exception to the above groupings. With our present rates, we realize the difficulty of justifying gas in heavy brick ovens where adequate insulation would be prohibitively expensive. Where heavy brick ovens are found to be in poor condition, we attempt to sell a new gas designed oven. If they are in good condition, we do not attempt to sell gas at this time. After a larger number of conversion jobs have been secured and are operating at a cost about equal to coal, we shall attempt to obtain some of the heavier brick ovens on gas. Because of the difficulty and expense of connecting these heavy ovens, and the comparatively high gas consumption, we believe that this business had better be passed up now rather than have the success of our present conversion campaign jeopardized by the high gas bills on ovens of this type.

The survey, then, allows us to direct our sales efforts. All the prospects falling in the two groups are set up on a spreader sheet showing the prospects' names and the frequency with which they are to be called on, monthly or semi-monthly, depending on our judgment of each case. On these calls, the advantages of gas over coal (that being our competition here) are impressed on the prospect. We have found that local bakers are willing to give acceptance to the following advantages, many of which have been volunteered by our bakery customers themselves:

1. Easy control of temperature in oven. Temperatures respond quickly at turn of valve or control.
2. Automatic temperature control if desired.
3. Best results can always be duplicated—just the desired bloom on bread, ruddy crust on pies, delightful lightness and color to cakes—no danger of burning or soft centers.
4. Temperatures can be changed quickly, saving time and fuel.
5. Heat is kept inside oven doing work for the oven operator—not outside tormenting him—a fuel saving.
6. Gas firing is clean. Food buyers demand the utmost of cleanliness.
7. Open view baking can be done as the ovens are pleasing in appearance.
8. Baking can be time scheduled as a definite time and temperature can be assured.
9. Labor is saved; gas tends itself.
10. Better working conditions are experienced.
11. Heat is turned off when baking is completed, another fuel saving.
12. Oven maintenance greatly reduced. No grates to buy, bricks to replace, etc.
13. No oven cleaning required. Gas is absolutely clean.
14. More space is available for production—no storage bin required for fuel or ashes.
15. Gas gives more usable baking hearth area per square foot of floor space occupied by oven.
16. The quality of goods is improved due to ability to control to just the right temperature at all times.
17. Cakes and muffins are larger in size as proper temperature allows goods to spring to utmost and they are not dwarfed by over-heating.
18. No cripples or spoiled goods due to non-uniform temperatures.
19. Saving due to elimination of cripples.
20. Better product gives satisfied customers and increase in business.
21. Gas saves time; time is money.
22. Baker has more leisure time for out-of-door recreation, as he does not have to tend fire over week-ends.
23. More time can be devoted to front

*Syracuse Commercial Gas Rate: First 2½ therms or less per month for $.50; next 20 therms @ $.19; excess @ $.13 per therm.

†Average price for large size anthracite in Syracuse: $12.50 per ton.

of shop getting acquainted with customers. This builds good will and more customers.

24. Gas is dependable.

25. Bakers claim gas is the finest fuel at the lowest overall cost.

The survey group classification and call backs are not the most important factors in our bakery campaign. The most important part is the customer's satisfaction after the job has been installed. Bakers in Syracuse, and doubtless in other cities, are a very close group. Each one knows what the other fellow is doing, what improvements he has made, and how well satisfied he is with various pieces of new equipment. A satisfied baker will do a more effective selling job in another bakery than will the best gas salesman in the country. For this reason, and also, naturally, for the satisfaction of having done a good job, our conversion installations are made with the utmost care to assure our customers of the finest performance at the lowest possible operating cost. For the same reason, new gas-designed ovens are recommended only after their operating efficiency, performance, and ability to satisfy our customers' requirements have been carefully studied.

Conversion Installations

Conversion jobs and gas-designed jobs form a powerful team in a bakery sales campaign. Providing the prospect's oven is convertable, the lower cost of the installation of conversion burners will overcome the objection he may have to the higher investment in a new oven. A few good conversion jobs, operating at a cost close to that of coal, greatly impresses those bakers who have always considered gas expensive, thus paving the way for future conversions and new oven sales. Some of our recent new oven sales are directly traceable to the low operating cost and fine performance of conversions. Is it not logical for bakers to conclude that, if a 15- or 20-year old coal oven can be fired by gas for the same cost as coal, a gas designed oven will operate even more efficiently.

The efficiency of a converted coal oven depends on how much the various heat losses can be decreased. Oven radiation loss, stack loss and loss due to excessive over-ventilation of the burners should be minimized.

The loss by radiation is decreased by insulation. We have found it desirable to insulate the bottom and top of all ovens we have converted. Some ovens should also be insulated on the side walls. By "insulate" I mean add additional insulation to that already existing, if any. The value of insulation was effectively demonstrated on the first oven we converted. The proprietor expressed his willingness to pay $40.00 per month for gas, whereas his coal cost was running $25.00 per month for two tons of anthracite. An estimate showed that his gas cost would be approximately $40.00 per month, so the job was installed on that basis. However, shortly after its installation, his business decreased due to his losing one of his three trucks, and he advised us that due to this condition he could afford to pay not more than $30.00. Fill insulation spread over the top and bottom of the oven to a depth of about 6 inches saved this job. Immediately after the application of the insulation, his bills dropped from $40.00 to around $27.00 per month. Top and bottom insulation are saving him about 33 per cent. His was a Middleby-Marshall double deck oven of 24 pans capacity. All conversion jobs sold since the above installation are insulated top and bottom and, if necessary, side walls too. Incidentally, if the coal oven is already so well insulated that further insulation at the time gas is installed would gain little or nothing, do not expect the gas cost to come as close to the coal cost as it would if the insulation favored gas alone.

The stack loss is decreased by the installation of a draft hood or open end tee, and by increasing the heat transfer through the oven flues by cleaning and reconditioning them thoroughly when the burners are installed. A damper gas valve interconnection which closes the damper when the gas is turned off also minimizes this loss during off periods.

The loss due to excessive excess air is held at a minimum by varying the damper opening for various firing rates. As mentioned above, the damper and the main gas supply are interconnected. Originally intended as a safety precaution to preclude the possibility of lighting the burners without first opening the damper, this interconnection affords a convenient way to set the damper at the most efficient points for several predetermined firing rates.

All oven conversion jobs are equipped with a water gage for accurate firing. So that the oven will always be fired at peak efficiency regardless of input, damper positions are determined by Orsat analysis for various firing rates as indicated by the firing gage. By this arrangement, we have been able to limit our excess air to 25 per cent, even at three to one turn down and hold it there throughout the firing range.

In addition to insulation, draft hood, and damper interconnection which enable us to achieve a high efficiency, all such installations are equipped with safety pilot control. The American Gas Association's recommendations are followed in detail.

The cost of converting a coal oven to gas depends greatly on the make and condition of the oven. In our experience, the cost for ovens around 20 or 24 pans capacity having two fireboxes ranges from $275.00 to $350.00, including insulation.

The operating cost can be estimated quite accurately from the coal consumption. Where the efficiency can be increased by applying additional insulation, the gas consumption will average around 100 to 120 therms per ton of coal used.

Study of Requirements

To those prospects who can be interested in new gas-designed ovens, there is a wide variety of styles and sizes to be offered. A study of his requirements will reveal the oven best suited to the baker's business. Different types possess different advantages. Flexibility, the ability to bake a variety of goods at different temperatures at one time, the fuel saving and improved results obtained by the ability to use only the space required by the size of the batch, over-all fuel economy, and the ability to use steam, are a few of the features of a modern indirect-fired gas oven of sectional construction that make it especially suited to the neighborhood retail baker. Saving in labor costs, freedom from peeling, consistently uniform baking results, and large capacity per unit of floor area make the mechanical type oven the ideal oven for bakers who desire these features. Bakers specializing in hearth goods seem to prefer stationary ovens of heavier construction, indirectly fired, so that they can be readily steamed.

No matter what type of work your baker prospect specializes in, there's a gas-designed oven that will fill his requirements better, and at a lesser total operating cost than ovens using other fuels, if your rates compare favorably with those in Syracuse.

Selling gas in the bakery does not end with the oven, and often times should not begin there. If rates are of the promotional type, it is advisable to work first on fried cake friers where the fuel cost increase, if any,

(Continued on Page 58)

"Cheap finishes look pretty on the sales floor—but unfortunately they don't stay that way. They're too soft. The beautiful lustre of porcelain enamel will never fade or mar under ordinary household use. You see—porcelain enamel is a mineral substance which has been fused or welded right onto its supporting metal at the intense heat of 1550 degrees. And it is that intense heat that makes porcelain enamel *the lifetime finish.*

"There is no economy in buying something you may be ashamed of in a year or two. And frankly, Madam, we would be violating your confidence in us if we recommended anything but the very best. That's why we always recommend porcelain enamel."

Mr. Dealer: Our "Sales Manual for Porcelain Enamel" is crammed full of selling points for this high-profit line. Send for a free copy today.

EDUCATIONAL BUREAU
PORCELAIN ENAMEL INSTITUTE, Inc.
612 North Michigan Avenue
Chicago

PORCELAIN ENAMEL THE Lifetime Finish

Discussing a point: C. A. MILLER, regional sales manager, Servel; R. T. STEPHENS, supervisor industrial sales, Pacific Gas and Electric Co.; and GEORGE S. JONES, vice-president in charge of sales, Servel. P.C.G.A. Past President H. M. CRAWFORD contemplatively smokes during general sessions. E. H. ADLER, industrial sales engineer, San Diego Consolidated Gas & Electric Co.; F. U. NAYLOR, manager of gas sales, Pacific Gas and Electric Co. Smiling: VIVIAN KIRKPATRICK of San Diego Consolidated, and THELMA DYER of Southern Counties Gas Co.

Reviewing the Pacific Coast Convention

(Continued from Page 21)

most instances the presentation of papers was brief because of pre-distribution of the data, in mimeograph form, from Association headquarters. The schedule of meetings and papers, as published, was closely adhered to.

Group Breakfasts

A very successful innovation was the 8:00 a.m. group breakfasts, on Wednesday and Thursday. These were practically 100 per cent attended, served to further acquaint the members with each other, and led to many profitable informal discussions. In the technical group the major chairmen for the ending and coming year discussed recommendations and plans, respectively, and received many useful suggestions from the gathering. It was evident that the incoming chairmen already have a well formulated and effective program. On Thursday morning there was also a short illustrated presentation, by H. G. Laub, Southern California Gas Co., of heavy automotive equipment developed by his company.

In the Tuesday and Wednesday afternoon sessions the "Round table" type of meeting was again used effectively, the group splitting up into sections, in separate rooms, so that longer and more intimate or informal discussion of any one subject was possible. On Thursday afternoon the group met as a whole for papers and reports of common interest.

The proceedings were greatly facilitated and assisted by definite assignment of motion picture and slide projection apparatus, and operators, wherever needed, through the courtesy of L. H. Steele, "Properties" chairman of the Convention committee. Approximately 100 technical delegates attended the meetings.

Under the chairmanship of Bert W. Reynolds, manager of dealer sales promotion for the Pacific Gas and Electric Co., the Advertising and Sales Section on Tuesday afternoon consisted of two profitable roundtable discussions. The first of these was concerned with domestic sales and was conducted by N. O. Fratt of the Seattle Gas Co. The second roundtable, confined to a discussion of commercial and industrial sales, was led by R. T. Stephens of the Pacific Gas and Electric Co. This meeting featured a display and a discussion on visual commercial cooking appliances, the discussion being led by Ray Trowbridge of the Seattle Gas Co.

The domestic sales and commercial and industrial sales roundtables of the Sales and Advertising Section held their second meetings on Wednesday afternoon with a continued discussion of pertinent subjects. The home service roundtable of this Section was also convened on Wednesday afternoon under the leadership of Gladys Price of the Southern California Gas Co.

The Sales and Advertising Section came to a grand finale on Thursday afternoon in a general meeting under Chairman Reynolds. On the program were papers dealing with air conditioning sales opportunities,* the supervising of commercial and industrial sales work, home service as an advertising media, a review of national home service progress, and a discussion of gas cookery and advertising.

The Accounting Section under Chairman J. Q. Ewing of the Southern California Gas Co. held two meetings. The first, held on Tuesday afternoon, featured a discussion on current problems in general accounting; the second, held on Wednesday afternoon, brought out a discussion of timely problems in customers' bookkeeping.

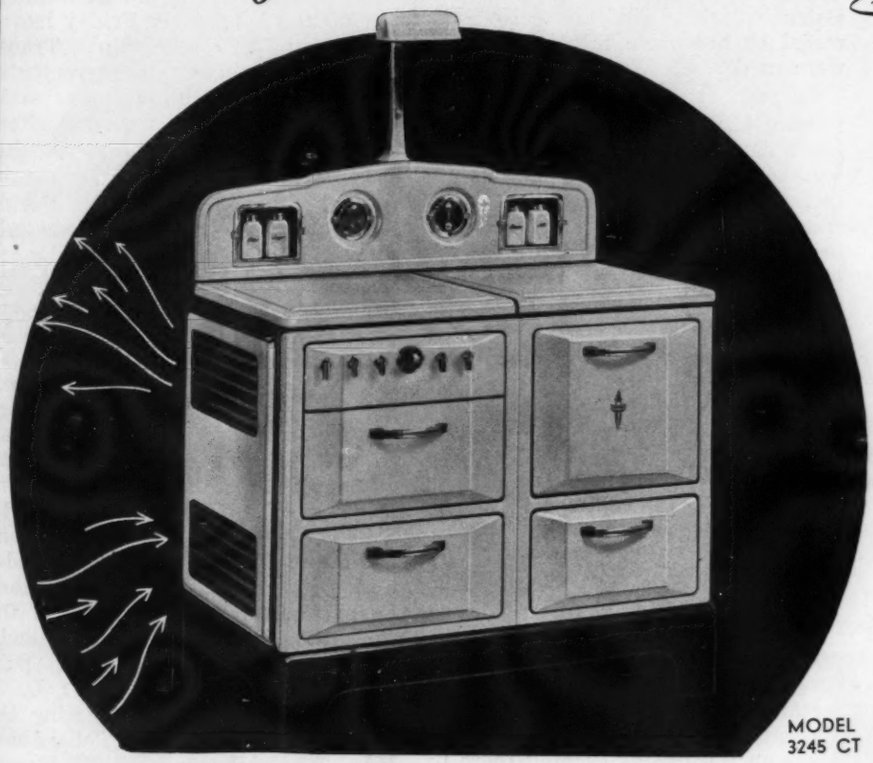
Manufacturers' Section

President Pollard welcomed the manufacturers to Seattle as their meeting opened on Thursday afternoon with W. J. Bailey of the Day and Night Water Heater Co., as general chairman. After the address of the chairman and a discussion of the A. G. A. E. M. and its work, the election of officers was held. Mr. Bailey relinquished his two-year chairmanship to C. R. Graham of the James Graham Manufacturing Co. R. C. Logue of the Ward Heater Co. became vice-chairman. Two papers were presented during the session. F. O. Suffron, supervisor of the Pacific Coast Branch of the American Gas Association Testing Laboratories, gave his paper on "Research on Domestic Gas Appliances." Mr. Suffron's paper was published in the May issue of *G A S*.

"Three Men in a Boat," by A. F. Rice, manager of market development, Southern California Gas Co.

* Jared A. Hill, "Gas Air Conditioning," see G A S, August, 1937, page 15.

She'll choose this Beautiful WEDGEWOOD



MODEL 3245 CT

COOKS HER FOOD

★

HEATS HER ROOMS

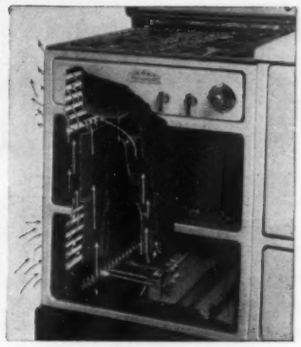
★

ONLY WEDGEWOOD HAS ALL THESE FEATURES:

* NEW EXTRA-LOW-TEMPERATURE OVEN
* SPEED-PLUS-SIMMER BURNERS
* ROTOR-DISC ASTOGRIL BROILER
* PORCELAIN LINED, INSIDE AND OUT

AND A BUILT-IN GAS CIRCULATING HEATER

* AUTOMATIC LIGHTER
* ONE-PIECE ALL-STEEL CONSTRUCTION



Cross-Section of the Built-in Heater

Heating unit formed from a single piece of steel for better conductivity, more heat. Does not increase range size. Capacity 20,000 B. T. U.

WEDGEWOOD

THE MODERN GAS RANGE

MAKES FRIENDS FOR GAS

JAMES GRAHAM MANUFACTURING CO. • SAN FRANCISCO, LOS ANGELES, NEWARK, PORTLAND

brought the session to a close. Mr. Rice's paper caused considerable comment and was the subject of much subsequent discussion which was led by Herman Russell, A. G. A. president. Mr. Rice's paper is published on page 16 of this issue of *G A S*.

Women's Committee

Under the leadership of Doris Allen, chairman, the Women's Committee held its meeting on Thursday afternoon. The Northern Lights as viewed from Seattle, Spokane, and Tacoma as described by Misses Loretta Crowley, Molly McCormack, and Dorothy Ollar of the above cities respectively, proved of unusual interest, particularly to the southern visitors. Other papers on public relations and sales topics were presented by Vivian Kirkpatrick, San Diego Consolidated Gas and Electric Co.; Zita O'Connor, Pacific Gas and Electric Co.; Marie Haiele, San Joaquin Light and Power Corp.; and Cleora Cole, Southern Counties Gas Co.

Throughout the three-day meeting were interspersed group breakfasts and luncheons. The breakfasts which were divided into three divisions—Accounting; Home Service and Sales; and Technical were attended to capacity each morning, and were followed by the informal interchange of many ideas. Prominent speakers were presented at each of the group luncheons, which were attended by all delegates. The Wednesday luncheon was featured by Professor J. K. Hall of the University of Washington who gave "A Few Observations of the Manufactured Gas Industry." W. Walter Williams, prominent Seattle mortgage banker and a director of the Seattle Gas Co., was the guest speaker at the Thursday luncheon. His topic, "Soft Shoulders," presented an outline of the dangers of slipping off the beaten road of time-tried economic law onto the "soft shoulders" of experimentation and extravagance.

Grand climax of the Convention was the Annual Banquet held in the Spanish Ball Room of the Olympic Hotel. In attendance at the banquet and honored by the assembled delegates were past presidents of the Pacific Coast Gas Association: H. M. Crawford, William Moeller, Jr., H. R. Basford, Addison B. Day, C. B. Babcock, E. L. Hall, W. M. Kapus, L. M. Klauber, and F. S. Wade.

It was the decision of the Awards Committee under the chairmanship of R. S. Fuller of the Pacific Gas and Electric Co. that the Technical Section should again receive the Basford Trophy which is annually presented to the Section having the most successful year. Otto Goldkamp, chairman of the Technical Section, accepted the award. The Women's Yearbook Contest was won by the San Diego Consolidated Gas and Electric Co., with Vivian Kirkpatrick as chairman. The second prize went to the Southern California Gas Co. with Helen French as chairman. No gold medal or honorable mention awards were made.

On the Convention program the women delegates were not neglected. Each day of the convention an entertaining event was planned especially for them. On Tuesday afternoon many attended the tea and reception held in the Palm Court of the Olympic Hotel. At this and at the other women's social events Mrs. James F. Pollard and Mrs. T. E. Roach acted as hostesses. On Wednesday morning an enjoyable and, to some, highly amusing putting contest was held at the Inglewood Country club. This athletic event was followed by a sight-seeing tour of Seattle. Thursday's event for the ladies was a luncheon and bridge at the Seattle Golf Club.

Entertainment

The tightly-scheduled convention program was well broken up with entertainment activities. Practically the entire delegation taxied to the docks on Wednesday evening there to board a Puget Sound ferry for a smooth and pleasant cruise about the Sound, through the locks, and to Lake Union. The cruise which included a picnic lunch and moonlight dancing was interrupted by a stop at a lodge in a secluded and wooded nook, where a streamlined version of "Romeo and Juliet" was staged by the employees of the Seattle Gas Co.

The Convention golf tournament, scheduled for Friday morning and afternoon at the Inglewood Country Club, did not entice a large turn out due to the desire of many golf-playing delegates to catch the early afternoon train. However, the tournament was efficiently handled, and much credit is due Chairman R. W. Coblentz of the golf committee. C. J. Melrose of the Spokane Gas and Fuel Co. won the Babcock, Peterson, Basford trophy, while Allan Granstrom won the cup offered by *G A S* with a low gross of 75.

Several more enterprising delegates took advantage of the good salmon fishing in Elliot Bay on the Puget Sound and arose before day break to try their skill. The odor of freshly caught fish was not pungently prevalent around the Olympic Hotel, though photographic evidence proved that delegates Herman Russell, F. O. Suffron, Homer Mead, and Al Guenther, and several others did not lose their sleep in vain.

Quite a number also took advantage of the special trip to Mount Rainier, leaving the hotel early Friday morning for the 220 mile tour. Transportation arrangements conveniently allowed many of the delegates making this trip to catch the early afternoon train south at Tacoma.

In closing this account of the 44th Annual Convention of the Pacific Coast Gas Association it is only fair that the final round of applause go to the men whose untiring efforts made the convention a success—the Convention committee. To Thomas E. Roach, general chairman, and to all the capable men serving on subcommittees the convention offered its appreciation at the Annual Banquet. Sub-chairmen of the Convention committee were E. J. Ludeman, entertainment; Wilson Gaw, banquet; L. H. Steele, attendance and reception; Chauncey Smith, hotel accommodation; Hyrum Crofts, registration; Frank Cadman, editor-in-chief of the convention newspaper; L. H. Steele, properties; Warren E. Kraft, publicity; R. W. Coblentz, golf; L. S. Davis, transportation. Assisting the hostesses, Mrs. James F. Pollard and Mrs. T. E. Roach were Mesdames Frank Merris, Frank Hawks, E. J. Ludeman, G. R. Horning, P. R. Dunbar, and D. M. Faulkner.

■ ■

Boston Consolidated Elects Farnsworth President

E. M. Farnsworth, who has been vice-president and general manager of Boston Consolidated Gas Co. since 1934, has been elected president to succeed Dana D. Barnum, who has resigned to devote his time to consultation for Boston Consolidated Gas Co. and other gas companies. Mr. Barnum has been president since 1917. He is a past president of the American Gas Association and now heads the American Standards Association.

Mr. Farnsworth is also president of Old Colony Gas Co., which he joined in 1911 as a graduate engineer.

■ ■

Dingwell Made Vice-President

James D. Dingwell, Jr. has been named assistant vice-president in charge of personnel relations, Washington Gas Light Co., Washington, D. C. For several years he has been assistant general sales manager, and, in all, has had 13 years of experience in the public utility field.

EASY TO INSTALL... HARD TO WEAR OUT!

● INDOORS OR OUTDOORS, Transite Flue Pipe assures the same continued trouble-free service. Its remarkable resistance to corrosion and immunity to weather, make it the permanent, economical solution to all your venting problems.

Offering a complete line of fittings, J-M TRANSITE FLUE PIPE provides rapid, economical assembly . . . its durability permanently solves your venting problems

THERE'S no questioning the fact that simple, quick installation is extremely desirable in a flue pipe. And when the same pipe provides *permanence*, you have a material that answers every venting problem!

Because it embodies both these features . . . J-M Transite Flue Pipe is being installed on more and more gas-heating systems every year. Available in both round and oval form, in various capacities, Transite comes in a complete line of sizes. Hence you economize on installation because assembly is rapidly . . . easily accomplished.

Permanence is assured by Transite's asbestos-cement composition. Inherently resistant to corrosive fumes . . . absolutely weatherproof . . . it is an important safeguard to the lasting convenience of heating by gas. And the resulting years of virtually maintenance-free service will help assure complete customer satisfaction with gas-heating dependability

In addition, Transite, with its relatively low heat conductivity, maintains stack temperatures at a higher level for longer distances . . . cuts down on flue condensation. It is exceptionally resistant to high temperatures and approved by the National Board of Fire Underwriters. And cost, considering all the advantages of this durable flue pipe, is surprisingly low!

Send coupon for new free manual

Here is J-M's comprehensive 20-page manual. It tells how Transite Flue Pipe solves venting problems permanently and inexpensively. Contains detailed drawings on every type of installation, and complete tables on sizes, weights and other details. Also, you'll find information regarding installation methods and data on the use of Transite for chimney linings.

Johns-Manville
TRANSITE FLUE PIPE

JOHNS-MANVILLE, 22 East 40th Street, New York City.
Send me your new 20-page manual on Transite Flue Pipe.

Name_____

Organization_____

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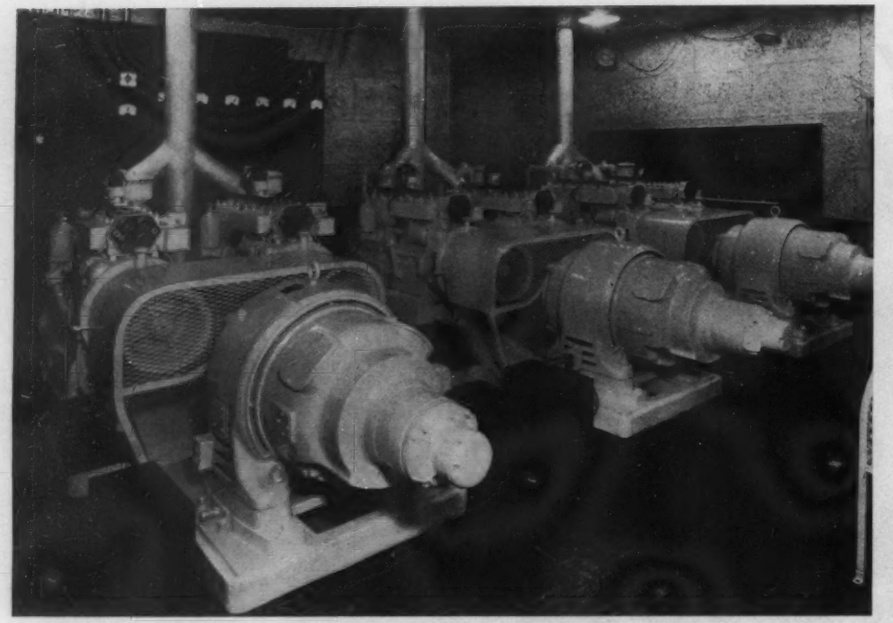


Close up view of the three 60-kw. Lycoming natural gas engine generating units with switchboards at back which furnish all light and power for the gas industries exhibit at the Greater Texas and Pan American Exposition. The two units at the right were operating as this time exposure was made.

Gas Engines Power Industry's Exhibit at Texas Exposition

NINE natural gas engines are being used to furnish power to operate air conditioning equipment and generate electricity for the gas industry's exhibit at the Greater Texas and Pan American Exposition in Dallas, Texas. Yet so silently do the engines perform their work that in the Lone Star Gas Co.'s auditorium adjoining the model engine room a cooking demonstration is held daily, undisturbed by sound from the engines, although at one end of the auditorium a large plate glass window affords a view into the engine room immediately beyond.

Occupying an entire wing of the Varied Industries Building, the gas industry exhibit covers a floor area of 18,970 sq. ft., and features gas appliances for cooking, water heating, general heating, refrigerating, air conditioning and general industrial uses. Cooperating with the Lone Star Gas Co. in sponsoring the exhibit are leading manufacturers of gas equipment with displays of their own products. These include Servel, Inc. with a display of Electrolux refrigerators, and the Pittsburgh Equitable Meter Co.'s gas meter exhibit.

Water heaters are displayed by Ruud Manufacturing Co., Hot Stream Heater Co., Cleveland Heater Co., Pittsburgh Water Heater Co., John Wood Manufacturing Co., General Water Heater Co., and the Bastian Morley Co.

Heating equipment manufacturers include Payne Furnace and Supply Co., General Gas Light Co., Clow Gasteam Radiator Co., Ward Heater Co., Ohio Foundry Co., Surface Combustion Co., Adams Manufacturing Co., and the Bryant Heater Co.

Range manufacturers include the Detroit-Michigan Stove Co., Cribben and Sexton Co., Estate Stove Co., Tappan Manufacturing Co. and the American Stove Co. A display of Chambers gas ranges is featured by Grasinger-Kendall, Inc., Dallas and Houston gas appliance dealers, in conjunction with the exhibit of the Payne Furnace and Supply Co.

Striking feature of the exhibit is the model engine room, which may be seen through the window in the auditorium or through two other large windows in the corridor connecting the auditorium with the manufacturer's section of the exhibit.

Three No. DG60 Dual Lycoming gas engine units supply a total of 180 kw. generating capacity to take care of electrical requirements of the building, which include 123 kw. lighting load and 33 kw. of small motor load supplying the fan and coil units and evaporative condensers.

Three AG-8-50 Lycoming engines were installed to furnish power for the 120-ton capacity air conditioning equipment. The air conditioning equipment consists of three No. 7G8 Carrier compressors, three No. 9Q9 Carrier evaporative condensers for Freon cooling, three No. 39Q9 Carrier Weathermaker fan and coil units and three No. 39Q7 Carrier Weathermaker fan and coil units.

Cooling System

Three of the fan and coil units, mounted on a platform above the stage of the cooking school, handle the cooling requirements of the auditorium while the cooling of the small auditorium and the exhibit display booths is accomplished by three fan and coil units above the main corridor. A complete system of air ducts and registers was installed to care for the circulation of conditioned air.

The Freon piping to the six fan and coil units was carried overhead above the engine room with a pressure and suction line to each compressor down through the ceiling. Each overhead unit was connected to the sewer system for the removal of condensation from the cooling coil. By-pass dampers on the fan and coil units were controlled by three thermostats.

The speed of the gas engines operating the compressors is controlled by the suction pressure of the Freon compressors in such a manner as to permit use of the engines on a continuous cooling cycle, varying the output of power to the compressors in direct proportion to the amount of cooling required at any particular time. The engines are belt connected to the compressors with a normal operating speed of between 900-1350 r. p. m. Compressor speeds vary between 350 to 500 r. p. m. Normal operation of the Freon system is 35 lbs. suction pressure and 120 lbs. head pressure.

Daily feature at the exhibit is a free cooking demonstration conducted by Albertine Berry, home economist for the Lone Star Gas System, on the stage of the gas company's auditorium which has a seating capacity of 300.

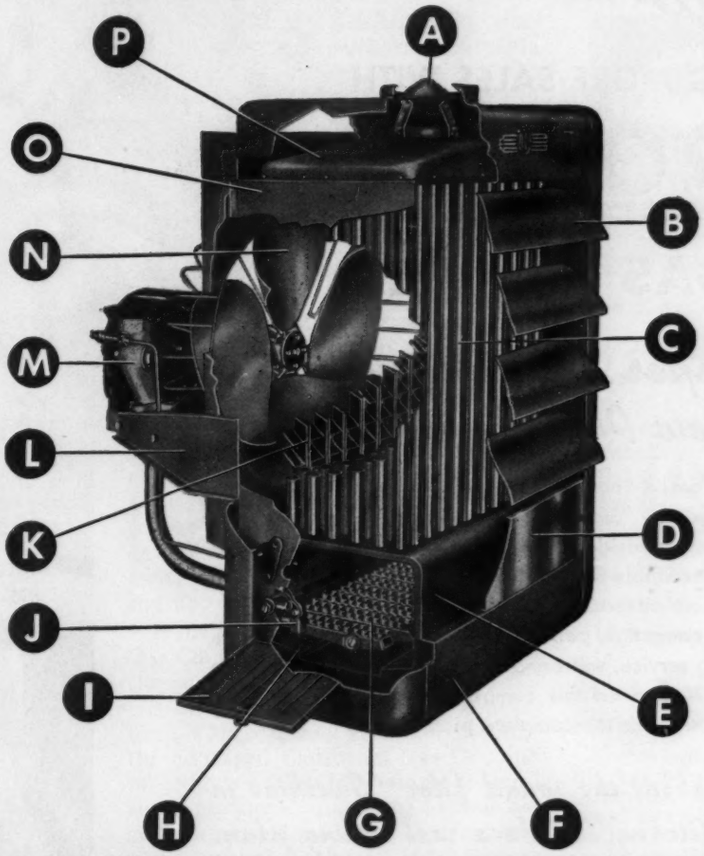
■ ■

Senate Committee O. K.'s Bill

The Lea bill to regulate natural gas companies engaged in interstate commerce was reported favorably early in August by the Interstate Commerce Committee of the U. S. Senate. The House had previously passed the bill unanimously.

Consider These Hidden Values

When You Buy A Gas Unit Heater



The HUMPHREY GAS UNIT HEATER

Only the Humphrey Gas Unit Heater—the first in the field and with 10 years of manufacturing experience behind it—has ALL of these features. Send for the new Catalog and Merchandising Portfolio.

A. Fully concealed down-draft diverter. No grill in front to mar appearance of heater.

B. Air-Directing Louvers. Constructed of heavy gauge steel. Easily adjusted to any desired position.

C. Brass Radiation tubes. Chrome plated to a point above intense heat zone. Designed and positioned for maximum heat exchanging efficiency.

D. Heavy chrome plated Front Panel.

E. Base Casting. Constructed of heavy locomotive firebox steel.

F. Burner Box. Can be readily lowered for inspection and cleaning of radiation tubes.

G. Highly efficient cast iron burners, with precision drilled raised ports.

H. Burner pan for regulating supply of secondary air to burner ports.

I. Panel Door. Provides easy access to pilot and to burner observation opening.

J. Bunsen pilot. Easily adjusted. Thoroughly reliable on any type of gas.

K. Steel Air-Guide. Assures proper distribution of air over radiation tubes.

L. Sturdy Steel Motor Bracket Support.

M. Positive acting Main Gas Valve.

N. New, quiet Fan. Overlapping-blade type. Heavy steel blades. Dynamically balanced.

O. Chassis side. Heavy gauge steel electrically welded to sides and top plate.

P. Vent housing of improved design.

GENERAL GAS LIGHT COMPANY

EASTERN OFFICE
23 WARREN ST., NEW YORK CITY

KALAMAZOO, MICHIGAN

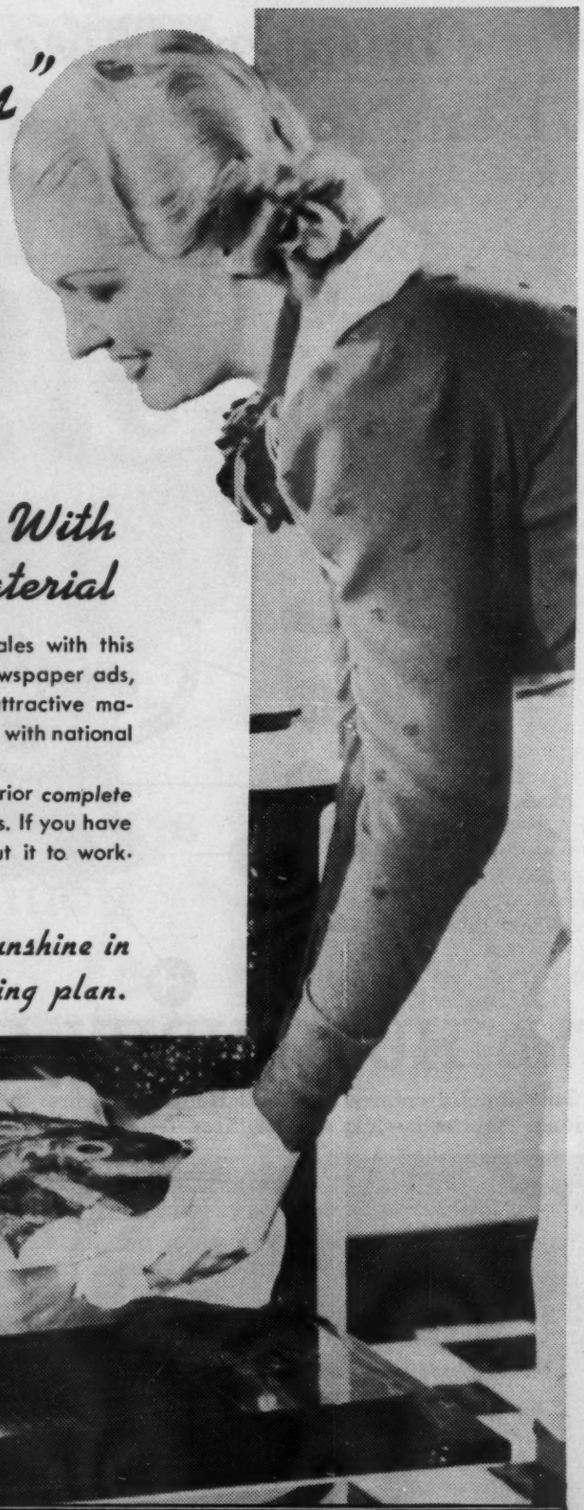
WESTERN OFFICE
475 ELEVENTH ST., SAN FRANCISCO

"Smilin' thru"

TO MORE SALES WITH

ROPER

GAS RANGES



*Roper Leads Again With New Promotion Material

Start "Smilin Thru" to more gas range sales with this dynamic new "Smilin Thru" campaign. Newspaper ads, folders, broadsides, display, and other attractive material, available for your use locally, tie up with national magazine advertising.

This campaign, publicizing Roper's superior *complete* cooking service, will bring you extra profits. If you have already received this campaign plan, put it to work. If not, write for the complete plan today.

*Ask about the sound film "Sunshine in the Kitchen." It's a real selling plan.

Complete Advertising and Sales Promotion Helps and Service yours for the asking . . . Let us show you

Tie in with the ROPER National Advertising Program

ROPER RANGES ARE IDEAL FOR USE WITH ANY TYPE OF GAS, INCLUDING BOTTLED GAS

GEO. D. ROPER CORP.

GENERAL OFFICES AND PLANT: ROCKFORD, ILL.

WAREHOUSES:

San Francisco Los Angeles Dallas Kansas City Chicago Washington Atlanta Cleveland Newark Philadelphia

Texas Companies Begin to Use Malodrant in Gas

ODORIZATION of natural gas sold for private and commercial use was ordered by the Texas Public Service Commission on July 27 and rules promulgated for the process. No specific malodorant agent was specified by the Commission, but, when introduced into natural gas, the malodorant must be of such distinctive odor as to indicate the presence of gas in concentrations not greater than 1 per cent by volume. In liquefied petroleum gas it must indicate the presence of gas in concentrations not greater than one-half of one per cent by volume.

The order directs that the malodorant shall be harmless and neither toxic nor nauseating, shall be non-corrosive to steel, iron, brass, bronze, or leather, and insoluble in water.

Lone Star Gas Co., which serves 300 communities, began odorization on July 26 at Gordon. The next day it introduced the odorant at Trinidad and continued quickly throughout the system, with the entire project scheduled to be completed in less than a month. The odorant was injected into the pipes at Chillicothe, Fox, and Hollis, Oklahoma and at a number of intermediate pipe line points.

■ ■

Interstate Natural Gas Co. Builds 25-Mile 20-inch Line

Construction of approximately 25 miles of 20-inch seamless pipe for Interstate Natural Gas Co., Monroe, La., will be completed about October 1 by Latex Construction Co. of Houston, Tex. The line will run to Baton Rouge from the Monroe field in northeast Louisiana. Work was started about August 1.

The line is in three sections, each approximately 8 miles long, the loops being between Ferriday and the Mississippi River, between Wisner and Gilbert, and between Alto and Mangham, all in Louisiana.

The pipe is welded in approximately 80-foot joints with Dresser couplings. It is given two coats of enamel and wrapped with asbestos felt. It is also bonded for cathodic protection.

■ ■

Brown Engineering Director for Connecticut Power

Cecil W. Brown has been appointed director of engineering for the Connecticut Power Co., in charge of all divisions. He has been acting chief engineer and manager of the New London division for eight years. He has been with the company since 1934.

Mr. Brown is succeeded by two men: Samuel Ferguson, Jr., formerly assistant treasurer, located in the Housatonic division at Canaan, who has been named manager of the New London division; and John J. Dowling, formerly assistant to the manager at New London, who has been named operating manager of the New London division.

■ ■

Doyle Is District Manager

B. Leo Doyle, who has been with the Philadelphia Gas Works Co., Philadelphia, Pa., since 1906, has been appointed manager of the West Philadelphia district.

F. J. Schafer and F. C. Ingram, Southern California Gas Executives, Retire

FREDERICK J. SCHAFER, vice-president of Southern California Gas Co., Los Angeles, and one of the oldest members of the gas industry in point of continuous service in the southern part of the state, will be among the 14 men who retire on September 1 under Southern California Gas Co.'s pension plan. On the day of his retirement, Mr. Schafer will have completed 30 years and eight months in the service of the Southern California Gas Co. and more than 42 years in the service of the gas industry.

F. J. SCHAFER

F. C. INGRAM

He began his career in 1895 as a yard man for the Los Angeles Lighting Co., predecessor of the Los Angeles Gas and Electric Corp. In 1904, he was made superintendent of the gas works. In 1906 he became assistant superintendent in the gas department of the Southern California Edison Co.

With the organization of the City Gas Co. in 1907, Mr. Schafer accepted the position of assistant superintendent of gas distribution and generation. This company eventually became the Southern California Gas Co., and in 1912 Mr. Schafer became general superintendent. Later, he became assistant general manager, then general manager, and finally, in 1930, he was made vice-president in charge of manufacturing, distribution, and sales, which position he relinquishes on his retirement.

It was under Mr. Schafer's supervision that the first natural gas was brought to Los Angeles in 1913 and mixed with manufactured gas for sale to Los Angeles consumers. The method of mixing natural gas with manufactured gas, and later of "reforming" natural gas—introduced in 1918—were both perfected by Mr. Schafer.

In 1926 Mr. Schafer served as president of the Pacific Coast Gas Association. For a number of years he has been a member of the Rate Structure Committee of the American Gas Association. Prior to 1920 he served as president of the National Association of Power Engineers, and he is also a member of the American Society of Engineers.

Retiring with Mr. Schafer is F. C. Ingram, another Southern California Gas Co. executive whose service record dates from the beginning of the company. Mr. Ingram is a former general superintendent of the customers' department, and present assistant manager of the customers' department of the consolidated company. He entered the employ of the City Gas Co. in 1908.

Other men retiring are J. P. Wells, William F. Bunnell, Herbert H. Brown, George L. Lear, John W. Whalen, Almeda Hulsman, J. Royal Lemon, John Keenan, Martin Donlan, Fred Benson, Charles W. Graves, and Louis Reinertsen.

■ ■

Stock Issue Authorized For Illinois Merger Plan

Commonwealth Edison Co., Chicago, Ill., has been authorized by the Illinois Commerce Commission to issue additional stock in order to acquire common and preferred stock of the Public Service Co. of Northern Illinois that is now outstanding. This is a preliminary step in the plan proposed for financial and corporate union of Public Service, Western United Gas and Electric Co., and Illinois Northern Utilities Co. with Commonwealth Edison.

The merger program does not call for unification of the physical properties or operating organizations of the companies.

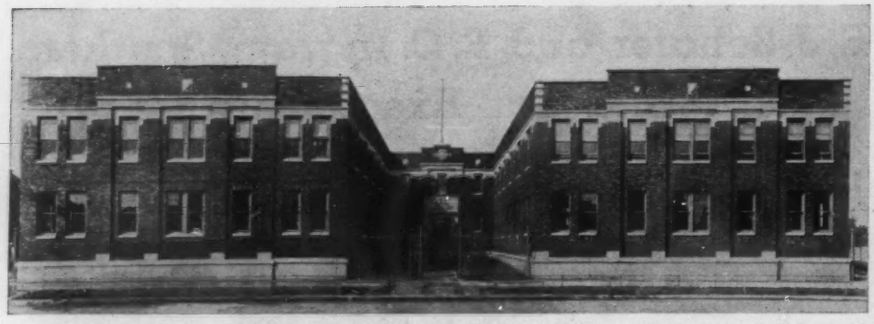
The entire plan is pending before the Securities and Exchange Commission. Authorization of the stock issue by the Illinois Commerce Commission was required before action could be taken by the Exchange Commission.

■ ■

C. H. Hodges, Vice-President of American Radiator, Dies

Charles Henry Hodges, first vice-president and member of the executive committee of American Radiator Co., died on August 7 in the Massachusetts General Hospital in Boston. He was 77 years old.

Mr. Hodges was a pioneer in the development and manufacture of cast iron sectional radiators, and was a member of the executive committee and a director of American Radiator Co. from the time of its organization in 1891 until his death. He was also treasurer of the company until 1905 when he retired from active service for several years because of ill health.



The American Gas Association Testing Laboratories at Cleveland, Ohio.

Revised Appliance Standards Effective January 1, 1938

THE American Gas Association Requirements Committee, at its recent meeting, adopted revised standards for domestic gas ranges, hotel and restaurant ranges, water heaters, draft hoods and semi-rigid tubing and fittings. These revisions are to become effective on January 1, 1938.

R. M. CONNER

Revised standards for domestic gas ranges eliminate the need for definite rating of ovens for use with city gases, and permit any rating provided the oven meets satisfactory performance requirements. A similar standard for ranges used with propane gas has been in effect for about a year. A new standard on oven preheating inputs and maintaining rates was also adopted.

Top section thermal efficiency requirements for domestic ranges have been increased for both natural and manufactured city gases, and for propane.

Revisions also place limitations on pilot lighter consumption and on the use of aluminum tubing where it is in contact with insulating materials possessing other than a neutral reaction.

The requirements for hotel and restaurant ranges have been correlated with applicable provisions of the domestic gas range standards, and with the listing requirements for various accessories. New requirements for the efficiency of open top ranges in this class were established, both for ranges used with city gas and for those used with propane. The outstanding change in hotel and restaurant range requirements was the addition of standards for such ranges for use with propane gas and butane-air gas.

Revisions of water heater standards cover largely the automatic heaters. An added requirement for low recovery units calls for satisfactory combustion with draft hoods removed and plate placed over the flue outlet, to cover the contingency arising from frequent installation of water heaters in kitchen and living quarters in this manner.

All water heaters for use with gases having a specific gravity greater than 1.0 must be equipped with a device which automatically shuts off the gas supply to all main burners and pilots in case the means of ignition becomes ineffective.

All heaters must carry detailed instructions for lighting to insure safe lighting of pilot and main burners. If temperature relief valves are provided, they must function at a lower temperature than formerly required.

Performance requirements for draft hoods have been entirely revised. Previous requirements were based upon the pressure drop through the hood when preheated air was passed through it at a definite temperature and velocity. The revisions provide two sets of performance requirements—one set governing draft hoods for use with converted central heating equipment, and a second set on draft hoods for use with gas water heaters and with gas converted water heating equipment.

Tests required on draft hoods are identical with the draft hood tests specified in most of the gas appliance standards. A listed gas conversion burner installed in a standard steam boiler is used for testing draft hoods for use with converted central heating equipment; a standard circulating tank water heater is used for testing draft hoods for use with gas water heaters and gas converted water heating equipment. This change enables manufacturers to duplicate requirements tests in their own factories, whereas, the special equipment required heretofore made testing in their own plants impracticable.

The exhibit of a horizontal draft hood in the previous standards has been replaced with a new type horizontal draft hood recently developed at the American Gas Association Testing Laboratories which shows better operating characteristics than the old type horizontal hood.

Exhibits of fittings for semi-rigid tubing have been revised to conform with the 1937 specifications of the Society of Automotive Engineers. Specifications for tubing dimensions have also been altered to permit manufacturing tolerances in tubing wall thickness. Revised endurance tests on semi-rigid tubing were adopted to give more specific test procedures and to provide tests which would be more consistent with the conditions under which semi-rigid tubing is used in the field.

Mimeographed copies of the revised standards have been distributed to all interested manufacturers. Printed forms are obtainable from the American Gas Association Testing Laboratories, 1032 East 62nd Street, Cleveland, Ohio, following their adoption as American Standard.

■ ■

Gas Service Co. Buys Lines At Pawhuska, Barnsdall

The Gas Service Co., Kansas City, Mo., has purchased the gas distribution properties at Pawhuska and Barnsdall, Okla., from American Pipe Line Co. Change of operation became effective July 1.

A. F. Potter, general manager of The Gas Service Co. at Bartlesville, Okla., will have general supervision of the management of the systems.

Both American Pipe Line Co. and The Gas Service Co. are subsidiaries of Cities Service Co.

■ ■

Rodessa Area Extends South

Extending gas production in the Rodessa field to the southwest, Arkansas-Louisiana Gas Co. has brought in a well three miles east of Jefferson, Texas, which has an estimated daily capacity of 50,000,000 cu. ft. of natural gas.

ONE out of every five of your domestic customers needs a modern kitchen range. Replace those obsolete stoves with Magic Chefs and you not only protect your profitable cooking market against the inroads of competition, but you stimulate more gas consumption as well.

For the new Magic Chef—particularly Series 2700, 3700 and 4700, with the exclusive Swing-Out Broiler and High-Speed Oven—is built to encourage Mrs. Modern to cook more by enabling her to cook more easily.

Because Magic Chef broils and bakes and top-cooks so much faster, more efficiently and more dependably, it guarantees Mrs. Modern a direct fuel saving over other types of ranges. At the same time, as typified by thousands already using this new range, Mrs. Modern is so delighted with its perfect performance, its convenience and ease of operation, that she does more broiling, more baking, more cooking of all kinds—with consequently greatly increased use of gas.

Magic Chef can be your best gas salesman. Here also, in aggressive presentation of the remarkable features of Magic Chef, is the surest way to meet victoriously the sweeping, high-powered attack of your fast-moving, fast-growing competitor in the domestic cooking field.

Not only that, but the sale of Magic Chef ranges affords a highly satisfactory gross margin for your Appliance Department.

AMERICAN STOVE COMPANY

BOSTON • NEW YORK • ATLANTA
CHICAGO • ST. LOUIS

PHILADELPHIA • CLEVELAND
SAN FRANCISCO • LOS ANGELES

LOOK FOR
THE RED WHEEL
WHEN YOU BUY
A MAGIC CHEF

Magic Chef
AMERICAN STOVE COMPANY

This comely Wisconsin Public Service Corp. Miss receives much attention from three gentlemen — all named Thrifty Van Penny.

Thrifty Van Penny Becomes Popular Trade Character

A NEW man in the gas industry is Thrifty Van Penny, trade character introduced by Wisconsin Public Service Corp., Green Bay, Wis. Although he has been with the utility for only a few months, he has enjoyed a meteoric rise to fame in the territory it serves, and even far afield, according to company advertising executives.

Van Penny owes his position with Wisconsin Public Service Corp. to Dale Remington, advertising manager, who thought him up. According to F. J. Hatch, publicity director, Mr. Remington wanted a trade character that would tie in closely with the gas industry and suggest economy. Thus Thrifty Van Penny came to life.

He is Dutch, because John Baptist van Helmont, credited with the discovery of gas in 1609, was Dutch. The character's head is a gas holder and his body is a penny.

Van Penny, Mr. Hatch states, made his first appearance in Plymouth, Wis., one of the smaller towns served by the company. There he acted as a third person and carried on an editorial advertising campaign for Public Service. After a few weeks the residents of the town were calling the company's service man Thrifty Van Penny and the cashier in the local office Mrs. Van Penny.

This led to the adoption of Thrifty Van Penny in the company's advertising program throughout the state. By now he is used to an even greater degree in direct mail, billboard, and window display advertising.

In fact, the Dutchman has become so popular that Mr. Remington has produced a statuette of Van Penny for use in store and window displays. It stands three feet high and is brilliant in five colors.

■ ■

Sale of Klamath Natural Gas To Republic Is Pending

Sale of Klamath Natural Gas Co., Klamath Falls, Ore., to Republic Electric Power Corp., San Francisco, Calif., is awaiting decision of the Securities and Exchange Commission upon Republic's application to purchase the common stock.

According to J. A. Ward, president of Republic Electric Power Corp., the company may, if the sale is authorized, make application to the Utilities Commission of Orgeon for permission to merge the Klamath Natural Gas Co. with Southern Oregon Gas Corp., Medford, another Republic property, in order to simplify the corporate structures and achieve efficiencies in management and operation.

■ ■

Amere Co. To Extend Line

Amere Gas Utilities Co., Beckley, W. Va., has been authorized by the West Virginia Public Service Commission to build a line to serve the outlying rural community of Crab Orchard and vicinity. This will be a 2-inch, medium pressure line, according to W. M. Reeser, district manager.

Coast Counties Constructing 60,000 Feet of Mains

CONSTRUCTION of 60,000 feet of transmission main is now under way by the Coast Counties Gas and Electric Co. for the extension of its natural gas service in Contra Costa County to include a rapidly developing area in the vicinity of Walnut Creek, Lafayette, and Orinda, according to H. W. Edmund, sales manager.

The new line will vary in size from 4" to 2". It will extend from the present termination at Walnut Creek on to Lafayette, around the lower Happy Valley Road, back on the upper Happy Valley Road, through a portion of the Orinda Tract, and past the junction of the new Tunnel Road on toward Moraga, as far as new building construction warrants.

J. P. McCall, gas superintendent in the Northern Division of the Coast Counties Gas and Electric Co., is in charge. Work will probably be completed in the early fall.

Present construction will be in the neighborhood of $50,000, and it is anticipated this figure will be far exceeded during the next year, due to the expected demands for further extension of this service. There will also be the construction of distribution laterals and services. The cost of these latter construction projects are not included in the $50,000 figure.

■ ■

C. L. Cadle, Manager of N. Y. Associated Properties, Dies

Charles L. Cadle, president of New York State Electric and Gas Co., Ithaca, N. Y., died recently in Binghamton. He joined the Rochester Gas and Electric Corp. in 1923 as consulting engineer, became assistant general manager in 1924, and general manager in 1927. In 1930 he was made general manager of all Associated Gas and Electric properties in New York state. He continued to hold this position until his death. In 1932 he was elected president of New York State Electric and Gas Co.

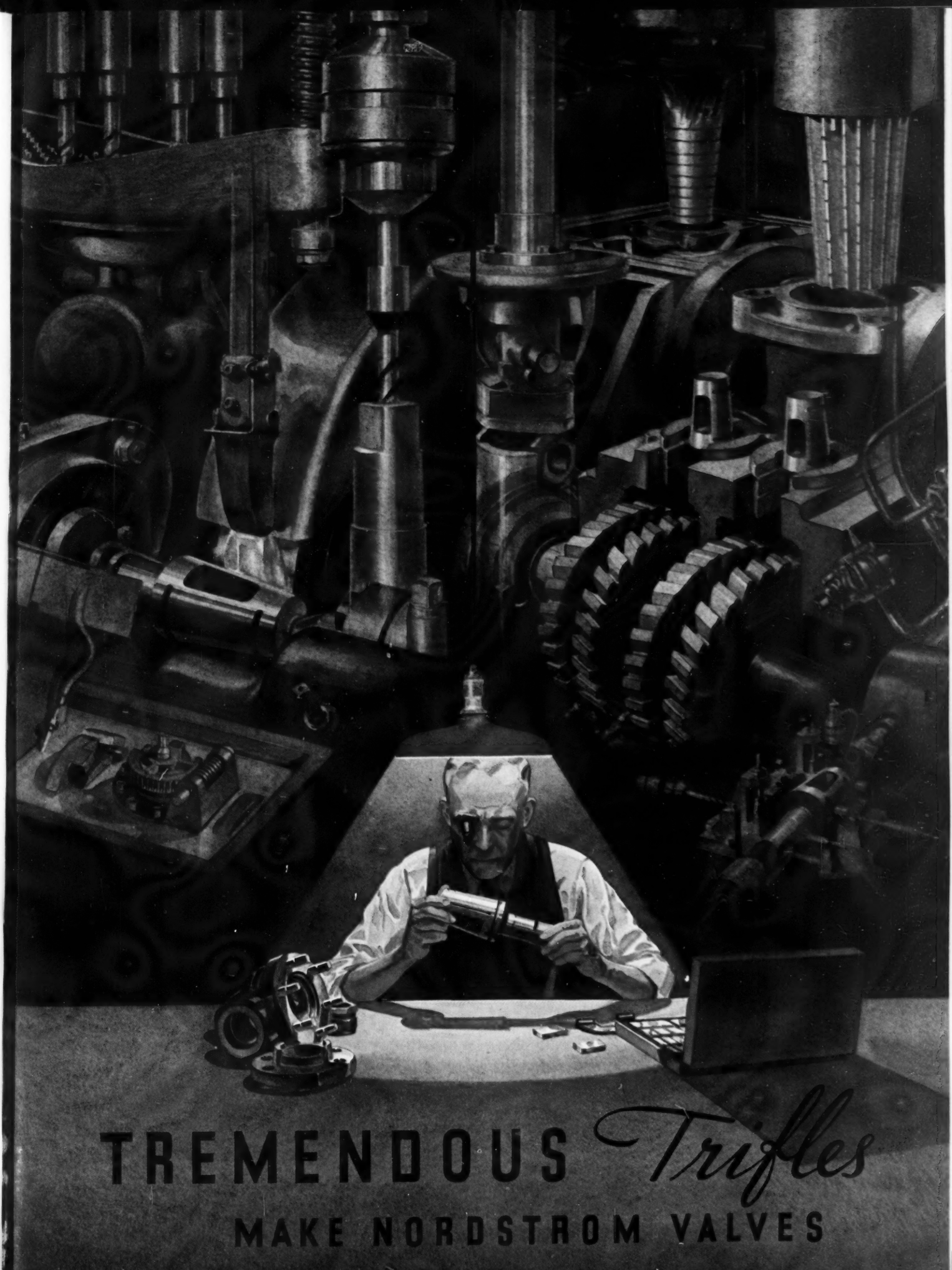
■ ■

Five Michigan Towns Petition For Hook-up Line

The Michigan communities of Durand, Corunna, Owosso, Ovid, and St. Johns have petitioned the Public Utilities Commission to permit construction of a pipe line to St. Johns from a point near Fowler on the main line of Consumers Power Co. The four communities, which now have manufactured gas, would connect to the line at St. Johns. The petition estimates that the communities would use about 40,000,000 cu. ft. of natural gas the first year.

The Consumers Power Co. line brings gas from the Six Lakes field in Michigan to Lansing.

Hearing was held on July 23. No order has yet been issued.


TREMENDOUS Trifles
MAKE NORDSTROM VALVES

THE PERFECT APPLICATION OF A PRINCIPLE

Point by point, *Nordstroms meet every major valve need*

Manufactured by extreme precision methods in world's most modern plug valve plant.

Sizes—½" to 30".

Pressures—Working pressures up to 5000 pounds.

Temperatures— −60° to +600° F.

Metals—Special alloys for specific services.

POINT 1 —QUARTER TURN
Quickest to open or close.

POINT 2 —SIMPLEST DESIGN
Fewest parts. Nothing to clog.

POINT 3 —"SEALDPORT" LUBRICATION
Patented feature provides proper lifting of plug by positive pressure.

POINT 4 —FULL-FLOATING PLUG
Always easy to turn. Non-freezing.

POINT 5 —POSITIVE PLUG SEAT
Plug rides on pressure lubricant seat from which it is never separated.

POINT 6 —NON-STICKING
Powerful hydraulic force performs triple function—lifts plug to turn easily; lubricates and seals valve.

POINT 7 —STREAMLINED FLOW
Minimum resistance to line flow.

POINT 8 —NON-LEAKING
Sealed by lubricant under pressure; prevents external and internal leaks.

POINT 9 —UNEXPOSED LUBRICANT
"Sealdport" lubricant grooves in plug and body so arranged that line contents cannot blow through when lubricant screw is removed.

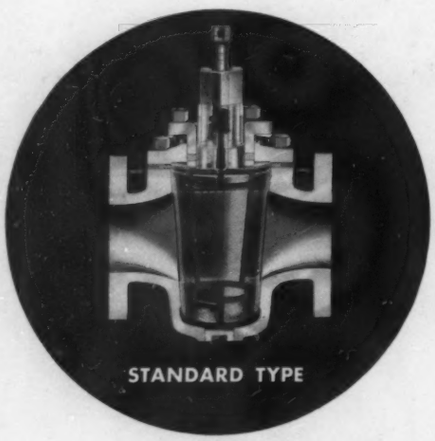
POINT 10 —CHECK VALVES
One or more ball checks in shank.

POINT 11 —SPECIAL LUBRICANTS
Highly developed lubricant and plastic materials in every consistency to meet specific needs for all variations of temperature and line contents.

POINT 12 —SPECIAL ALLOYS
For every service, including iron, Nordco steel, semi-steel, stainless steel, bronze, Mercoloy, aluminum, nickel alloys, etc.

Ask for Catalog.

EMCO-NORDSTROM TYPE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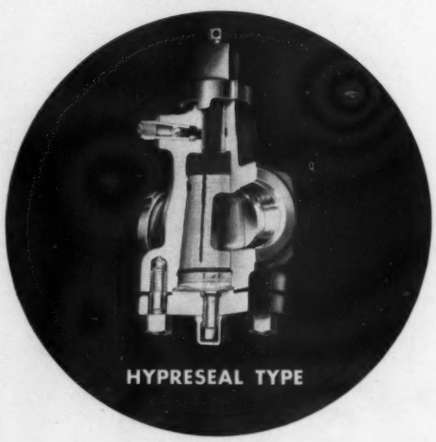
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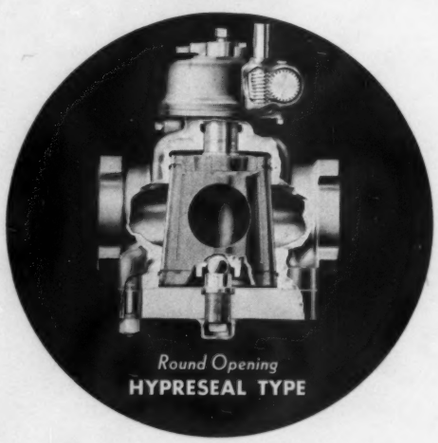

Round Opening
HYPRESEAL TYPE

MERCO NORDSTROM VALVE CO.
A Subsidiary of
PITTSBURGH EQUITABLE METER CO.

Main Offices: Pittsburgh, Pa. Branch Offices: New York City, Buffalo, Philadelphia, Columbia, Memphis, Atlanta, Chicago, Kansas City, Tulsa, Houston, Los Angeles, Oakland. Canadian Representatives and Licensees: Peacock Brothers, Ltd., University Tower Bldg., Montreal, Quebec.

NORDSTROM VALVES

LUBRICATED PLUG

PATENTED "SEALDPORT" LUBRICATION

Start 33-Mile Line to Mankato For Changeover After Sale

NATURAL gas will replace manufactured gas in Mankato and North Mankato, Minn., possibly by November 1, following sale of the local distribution systems by Northern States Power Co., to Richard E. Crawford, who will operate under the name of the Mankato Natural Gas Co. News of the sale was confirmed by Charles F. Stewart, assistant to the president of Northern States.

Thirty-three miles of 8-inch line is now being built by Northern Natural Gas Co. to carry gas from the company's main line near Owatonna, Minn. to mankato and North Mankato. Construction should be completed by the last of September, according to J. F. Merriam, assistant to the president of Northern Natural Gas Co.

The Mankato Natural Gas Co. was assigned the franchise of the Northern States Power Co. in Mankato, and obtrained a franchise in North Mankato. The new owner took over the property on August 18. Mr. Crawford is also president of the Minnesota Valley Natural Gas Co., which serves St. Peter, near Mankato, and several neighboring communities.

■ ■

St. Louis May Get 100% Natural Gas

Possibility of 100 per cent natural gas for St. Louis, Mo., will be studied during hearings to be opened by the Missouri Public Service Commission in November, as a result of a petition filed by the city asking that the Laclede Gas Light Co. serve all natural gas instead of a combination of natural and manufactured, as at present.

The hearing was originally scheduled for August 4, but has been postponed for ninety days, according to Robert E. Holliway, secretary of the Commission.

A valuation of $39,000,000 and a return of 6½ per cent for the Laclede Gas Light Co., a 6 per cent reduction in gas rates, and return to gas customers of an impounded fund approximating $800,000 were recently sanctioned in a ruling of the Missouri Supreme Court affirming an order of the Missouri Public Service Commission.

■ ■

Extends Service to Lakeville

Natural gas will be piped into Lakeville, Minn., by Minnesota Northern Natural Gas Co., according to an announcement to newspapers by J. P. McDermott, district superintendent. The company, which serves Rochester, Owatonna, Farmington, and many other communities, will extend its line to Lakeville as soon as pipe can be received, it is said. The new territory will be served through the Farmington office. Lakeville has a population of approximately 550.

■ ■

Texas Cities to Serve College

The College of Mines in El Paso, Texas, will be equipped 100 per cent on natural gas fuel service when the Texas Cities Gas Co. completes 2500 ft. of high pressure line to service the new boiler equipment at the college. Without the new equipment, natural gas was served on the campus only to two dormitories and the museum.

U. S. Soil Corrosion Conferences This Month in Los Angeles and Houston

REGIONAL soil corrosion conferences will be conducted by the U. S. Bureau of Standards during September in Los Angeles, Calif., and Houston, Texas, as preliminaries to the fourth national conference which will be held under the auspices of the Bureau in Washington, D. C., from November 15 to 17.

Dr. K. H. Logan, chief of the underground corrosion section of the National Bureau of Standards, will attend both regional conferences, which he has organized to permit attendance of corrosion engineers on the West Coast and in the Middle West who are unable to go to Washington. Some of the papers to be presented at the eastern conference will be given at the regional conferences, and Dr. Logan will discuss local problems with engineers attending the meeting.

The Los Angeles parallel regional conference will be held on September 14, at 2 p. m. in the building of the Southern California Gas Co., 810 South Flower Street, according to announcement by Guy Corfield, research engineer, Southern California Gas Co. Two papers will be presented by the authors, Mr. Corfield states. These are "Properties of Asphalts," by Dr. U. B. Bray, Union Oil Co., Wilmington, Calif., and "Tests and Specifications for Protective Coatings," by Harry Hayes, Bureau of Water Works and Supply, City of Los Angeles.

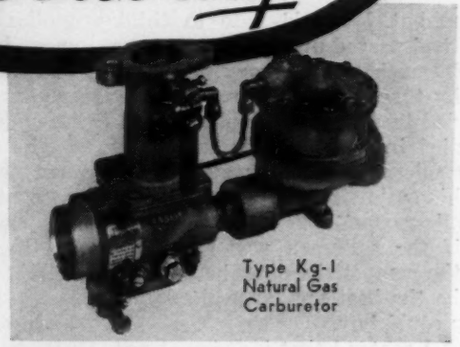
Other papers prepared for the Washington conference will be presented in abstract, and general discussion will follow.

W. M. Henderson, superintendent, Central Division, Southern California Gas Co., is chairman of the Los Angeles conference, which will be open to anyone interested in the problems brought about by soil corrosion.

The Houston conference will be held on September 23.

Starr Thayer, corrosion engineer, United Gas Public Service Co., will lead the conference. The program has not been announced.

ENSIGN *Superiority*



Type Kg-1 Natural Gas Carburetor

Advanced engineering and proved design, backed by more than 25 years of pioneering in the development and maufacture of fine precision carburetors and fuel regulating equipment, give Ensign Carburetors their high rank in every comparative demonstration.

Butane Equipment; Gasoline Carburetors for Industrial Engines and Tractors

Ensign Natural Gas Carburetors afford the economy of natural gas fuel plus utmost efficiency in the utilization of that fuel through high precision metering and control. Built for use on practically all types of multiple cylinder stationary engines. Bulletin on request.

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HUNTINGTON PARK • CALIFORNIA
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SALES SLANTS

A month by month presentation of experiences on the sales front.

Sell Your Salesmen and They Will Sell You

HERE is a question that is subject to debate: Is it better to train your men from raw recruits or to choose men who got their experience in competitive lines? Some sales managers feel that former competitive salesmen never quite lose their belief in the superiority of the product they once sold. But here's a sales manager who takes the opposite view. His argument follows:

"I have heard it said that a raw recruit is to be preferred to a salesman who got his experience in a competitive line. This preference is based upon the belief that it is more difficult to shake a former competitive man of his feeling of allegiance to the old line—which tends to color his belief in the gas appliance line—than it is to train a raw recruit.

"Perhaps there's merit to this contention, but I should hate to think that I had passed up a chance to save myself much preliminary training work by turning down a man already grounded in selling principles.

"Belief in a product is important and a salesman is never at his best until his enthusiasm for what he sells is spontaneous. It follows, therefore, that if the salesman was successful with the competitive line, he believed it to be the best appliance the homemaker could buy.

"But I contend that if it is not possible to convince an able man of the superiority of the gas appliance line to the point that his enthusiasm for it supersedes the enthusiasm he felt for the former line, the fault is not with the salesman or the product but with our sales story.

"I have had former competitive men on my force who failed. But they were failures when they came to me. I should look upon it as a failure of my own to allow a man with a successful record in selling to go down in defeat with the gas appliance line.

"It takes a long time to make a salesman and endless months of tedious training. When a man comes to me with those months of initial training already behind him and a proved record in selling, I consider myself fortunate.

"If other sales managers have met with sad experience in taking on former competitive men, I think some of it can be attributed to the salesmen's lack of ability. The mere fact that a man has been known as a salesman for a period of years does not prove ability. It becomes necessary to know the facts concerning his past record. If that record is good, a clear statement of the facts about gas appliances and repeated demonstrations of those facts ought to qualify the salesman for the job ahead.

"And if your story is not sufficiently well organized to sell a man who wants to be sold, perhaps you had better review your sales story and plug up its weak points rather than throw up your hands in despair of bringing former competitive men to your way of thinking.

"We only need remember that our competitors have developed a pretty good sales story for their men and if we fail to sell either a prospect who is also considering competitive appliances or a former competitive salesman who wants to work for us, the only answer is that our sales story is not as good as that of our competitors."

Even the Best Salesmen Will Sometimes Argue

ONE of the first things a salesman needs to learn, said a gas appliance salesman of our acquaintance, is to avoid argument. Sometimes it is among the last things a salesman learns and sometimes he never learns it.

The funny thing is that most salesmen will shame you for being so elementary as to insist that "to win an argument is to lose a sale."

"Of course I know enough about selling to know that," he will say, but in spite of a confessed knowledge, I've seen 'em tumble into that very pitfall time after time.

Why? It seems to be human nature for a man to rise up in defense of his words whenever the slightest question is raised which tends to refute them. And he will often do this without hesitating a moment to consider the consequences. This seems particularly true when a man is telling about something which he knows from A to Z and which he believes with a full measure of enthusiasm will do just what he says it will do.

It is a fault a salesman can slip into so easily that he is not always conscious that he has become argumentative.

Once I was on the side line as another salesman was about to sign up an Electrolux prospect. Before the act was done, however, the prospect happened to remark that he didn't think the lack of moving parts made such a great difference, since almost all automatic refrigerators seemed to stand up pretty well. "But you are wrong," was the salesman's comment and he proceeded to prove it, a thing he was thoroughly qualified to do because of the knowledge he possessed on the subject.

In the light of cold logic, the prospect's remark amounted to nothing more than a harmless comment which, unanswered, probably would not have affected the sale either way. But in the way it was answered, it killed a sale.

How should the salesman have answered? "Perhaps you are right, Mr. Prospect, but the lack of moving parts is an added advantage you can find in no other automatic refrigera-

tor and it costs you no more." With that introductory remark, a clear explanation of just what was meant by "added advantage" would have cinched it.

I give that as the right answer because another salesman used it later on the same prospect to win the sale.

The salesman who became argumentative—and lost the sale—is not a newcomer to the business. He would consider his intelligence offended if you were to be so elementary as to point out to him the danger of argument.

The point is that a salesman can slip into an argumentative manner without being conscious of it. And the moral is not so much a matter of knowing its danger, but of being constantly and everlastingly on guard to avoid it.

■ ■

Novel Drive Sells 561 Units For Wisconsin Power & Light

Exceeding the gas range quota by 108 units and the gas automatic storage water heater quota by 57, Wisconsin Power and Light Co. closed its two-months' Speedway Contest with a total of 561 units sold in the domestic gas division. The campaign was elaborately worked out in laps. Prizes totaling $300 were offered, with extra bonuses for extra laps and trophy awards for the winners. Drivers, mechanics, and pit crews collaborated to keep the various colored cars on the track. W. C. Bartels is advertising manager.

A vigorous newspaper campaign was carried on during the contest.

■ ■

General Atlas' Carbon Plant To Start in October

General Atlas Carbon Co. will start construction, probably in October, of a carbon black plant near Guymon, Okla., with a capacity of 5,000,000 cu. ft. of gas a day, according to Carl J. Wright, vice-president. The company, which has been operating a plant at Pampa, Texas, for nine years, manufactures its product under the name of "gastex" and "pelletex."

According to Mr. Wright, the plant will probably be in operation next spring. It will produce from 12,000,000 to 13,000,000 pounds a year. Gas will be obtained from the Cabot Carbon Co.

■ ■

Gas Service Co. Sells 3601 Water Heaters in Drive

Gas Service Co., Kansas City, Mo., sold outright 1,142 automatic storage water heaters in a campaign conducted during April and June. An additional 2,459 sales were closed from previous rental orders. New orders for rentals numbered 1,131 during the two-months drive.

Six trips to the American Gas Association convention were offered as prizes. Two men tied for sixth place, and the company awarded a seventh trip so that both might go.

A. G. A. Displays Heavy Duty Equipment to Caterers

The annual get-together of the men who are the leading food stylists of this country and Canada was held at The Bellevue-Stratford, Philadelphia, Pa., during the week of August 16. This was the convention of the International Stewards and Caterers Association and was attended by hundreds of men and women from practically every state. The American Gas Association, through the Committee on Displays at National Industrial Expositions of the Industrial Gas Section, sponsored a display of modern heavy-duty gas cooking equipment.

Chief attraction was a pair of heavy-duty gas ranges. One was a late 1937 model and one was made in 1934. Under the caption, "Here's Proof That Modern Gas Equipment Will Save You Money," large dial gas meters, one connected to each range, showed that the oven of the fully insulated 1937 model kept a temperature of 450° with about 25 per cent less gas than was used by the older, uninsulated range. Graphic charts showed continuous records of temperatures both inside and outside each oven.

On view also were new heavy-duty ceramic gas broilers, completely remodeled for more attractive appearance and for ease in keeping clean; a gas heavy-duty deep fat fryer designed for the larger kitchen; and a two-deck gas bake oven with individual heat and thermostatic temperature control for each deck.

A demonstration featuring the preparation and baking of pies was given on Monday evening and Wednesday afternoon by the Philadelphia Restaurant Association, host for the convention. A large deck gas oven was used. Monroe "Boston" Strause was the chef in charge.

The American Stove Co.'s new line of heavy-duty gas ranges was shown by the local dealer, and miscellaneous commercial gas cooking appliances were exhibited and demonstrated by various dealers.

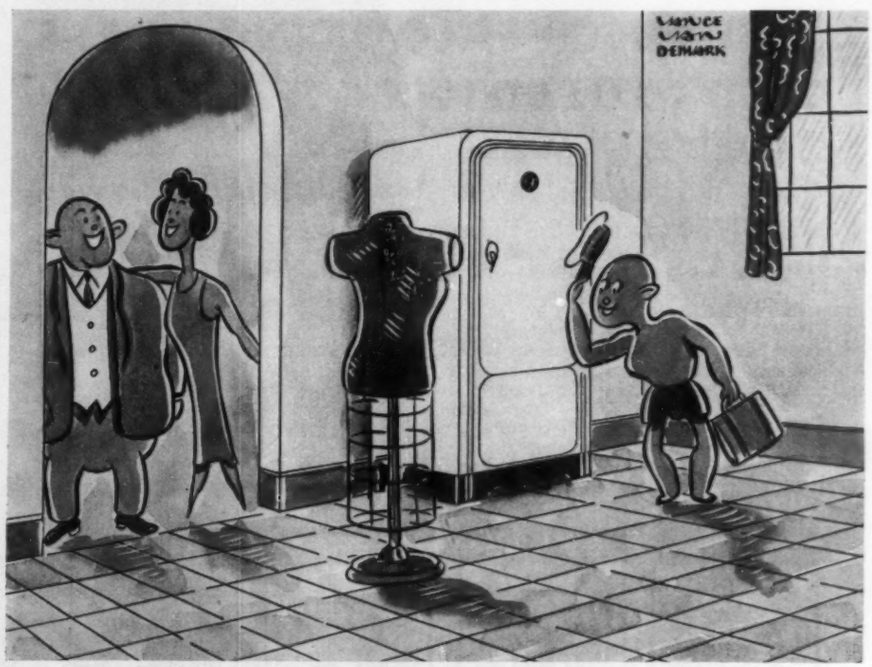
The American Gas Association exhibit was conducted with the cooperation and help of The Philadelphia Gas Works Co., Detroit-Michigan Stove Co., Standard Gas Equipment Corp., and The Blodgett Oven Co. Harry A. Sutton, chairman of the Association's Industrial Display Committee, Frank H. Trembly, Jr., assistant general sales manager, The Philadelphia Gas Works Co., and Eugene D. Milener, secretary, Industrial Gas Section, organized the gas exhibit. The booth was manned by Charles C. Hanthorn, and David M. Barrett of The Philadelphia Gas Works Co.

■ ■

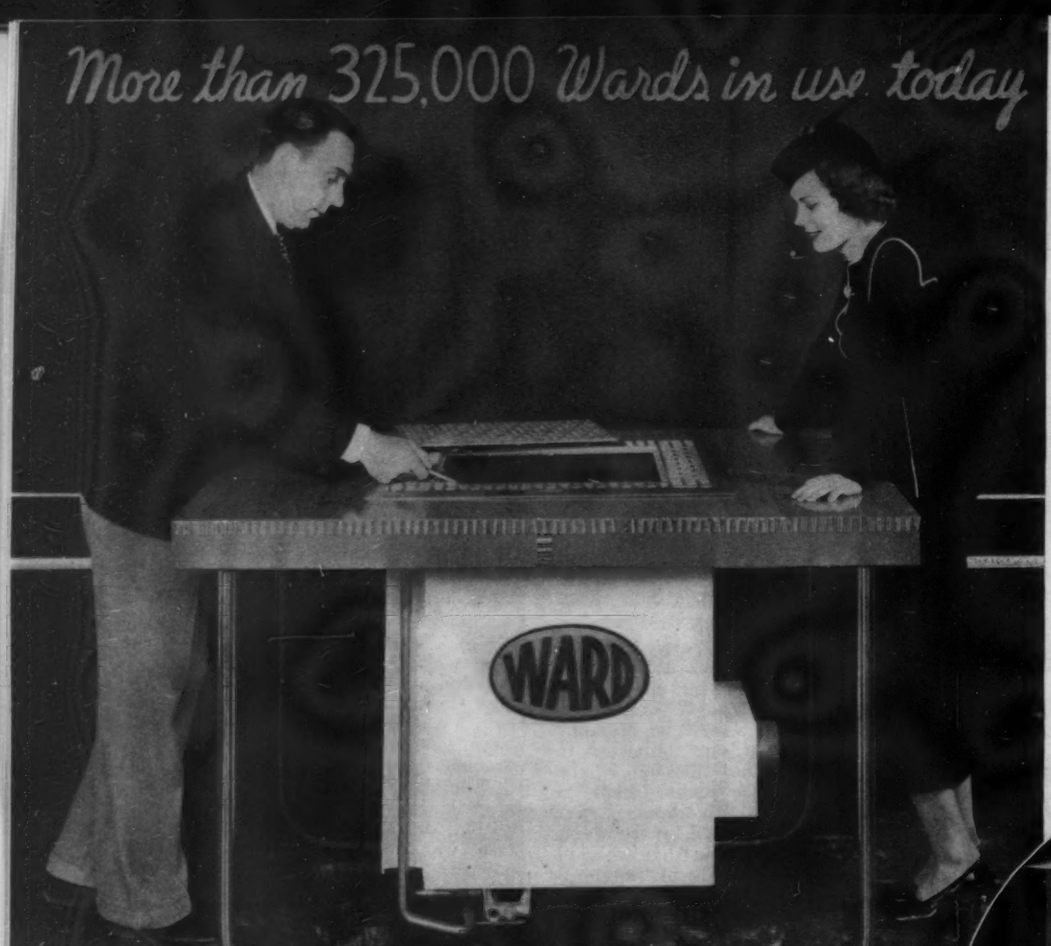
Dehydration Plant at Pampa

A dehydration plant will be completed about October 1 by Cities Service Gas Co., Bartlesville, Okla., at its Pampa compressor station. The plant will permit operation of the 20-inch mainline from Pampa to Wichita at higher pressures.

LITTLE NAT **By Vance Van Demark**



"He's practising to be a gas appliance salesman when he grows up!"



This picture of a WARD FLOOR FURNACE in a display stand in our Los Angeles sales rooms illustrates how the furnace hangs beneath the floor, register at floor level being all that is seen in the room. Note easily removable center section of register, also copper nipple vent connection and WARDS' exclusive Bilt-In Thermo-Control . . . part of furnace, not a separate accessory.

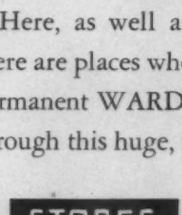
Only in W do you

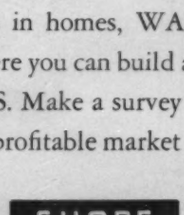
Because the WARD FLOOR FURNACE is built in a sturdy "complete package" with all accessories and controls part of the furnace itself, there are no difficult installation problems. Simply drop the WARD into the floor opening, connect to gas line and vent and it is ready to go to work. An experienced gas fitter can install a WARD in a few hours.

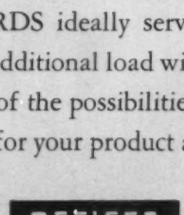
ARE YOU OVERLOOKING THESE LOAD-BUILDING OUTLETS?

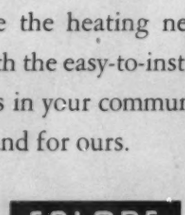
Are you overlooking the possibilities of building load through floor furnace installations in small, hard to heat commercial establishments? We're speaking of such places as the barber shop, the tailor shop, the cigar store, the grocery store, the millinery shop, the one-story office and other establishments of this sort.

Here, as well as in homes, WARDS ideally serve the heating need. Here are places where you can build additional load with the easy-to-install, permanent WARDS. Make a survey of the possibilities in your community through this huge, profitable market for your product and for ours.









WARD REPRESENTATIVES

NEW YORK—
Herbert A. Lovell, 455 Chanin Bldg.

PITTSBURGH—
H. C. Sanderson, 207 Fulton Bldg.

CHICAGO—
J. E. Davies, Peoples Gas Building

KANSAS CITY—
J. H. Stubbins, 300 E. 68th Terrace

DALLAS—
A. S. Kincaid, 2012 N. Harwood Ave.

SAN FRANCISCO—
Robert J. Mullen, 557 Market Street

YOUR LOAD IS AS GOOD AS THE APPLIANCE YOU SELL!

a WARD FLOOR FURNACE get ALL these advantages

There are several good floor furnaces. We are glad to see that more and more they are beginning to advertise to you, telling you of their merits.

Anything that increases your appreciation of the load-building possibilities of floor furnaces generally is bound to increase your appreciation of WARD FLOOR FURNACES. Only in the WARD, produced with all the engineering skill and experience of the oldest and largest manufacturer of floor furnaces in the world, do you gain so many advantages of superiority in design, materials, workmanship and operating performance.

Check the following list of some of WARDS' outstanding features. We think you will find this the best possible argument as to why you should feature the WARD FLOOR FURNACE in your merchandising program to permanently build and preserve your load.

CONSIDER THESE SUPERIOR FEATURES

1 **Bilt-In Thermo-Control**—An *exclusive* WARD feature. Not a separate accessory. Control gauge and thermostat are part of furnace. No wires to run, no difficult installation. Contacts air as it passes through furnace, giving unusually accurate warmth control.

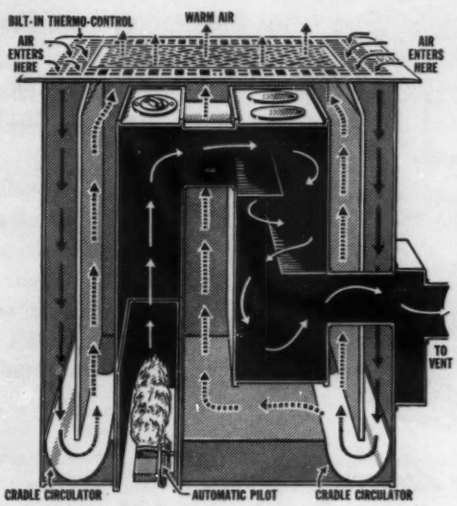
2 **Sealed Lighter Door**—Made of brass. Screws into cast iron flange on top of combustion chamber. Brass expands more than cast iron under heating, *hermetically seals* fire box.

3 **Toncan Iron Construction**—WARDS are built of 16 and 18 gauge, copper-bearing and rust-resisting, Toncan Iron. Heating element is hand acetylene welded throughout to insure strength, durability, tightness against gas leakage.

4 **Flame Fender**—Cast iron lining surrounding burner. Keeps flame from impinging on any vulnerable part. Prevents burning out. Assures long life.

5 **Slotted Burner**—Bunsen type. Heavy cast iron with raised slotted flame tips. Consumes 100% of the gas. Burns with a steady blue flame. Noiseless, self-cleaning.

6 **Automatic Pilot**—Pure brass valve, outer rod of copper with chromium tip. Comparative tests prove amazingly quick action. Shuts off main intake immediately should gas pressure fall or flame be extinguished. Burns with steady blue flame. Consumes all the gas.



14 **Complete Package Assembly**—The WARD FURNACE is complete in itself. All controls and accessories are built in. There are no external parts, no wires, no fragile connections. Nothing to get out of order, nothing to wear out. Long life and service assured.

7 **Gas Pressure Regulator**—Insures even gas flow at all pressures, increasing heat efficiency by equalizing any fluctuation of main line pressure.

8 **Removable Register**—Cast iron with oxidized brass finish. Made in two sections. Air enters at outer edges, emerges from center section, thus radiating heat does not interfere with circulation. Entire register removable for cleaning.

9 **Insulated Inner Shell**—Asbestos insulation attached to shell with galvanized iron discs. Dust-proof collar prevents dust and dirt from entering furnace. Inner shell can easily be lifted out of furnace.

10 **100% Air Chamber Circulation**—WARD gives free circulation on all sides of heating element. Especially insulated vent connection prevents radiating heat from interrupting circulation.

11 **Draft Diverter**—Keeps down drafts from extinguishing pilot or burner. Prevents heat escape through vent.

12 **Copper Vent Connection**—Nipple outlet connecting draft diverter to flue pipe is made of copper, impervious to moisture. Will not rust out.

13 **Cradle Circulator**—Increases circulation efficiency as much as 20%. Reduces down drafts. Makes air movements steady and continuous. Draws air of room through the furnace three to six times an hour.

Would you like to know more about WARD FLOOR FURNACES and what other utilities are doing with them? Ask us to send you full facts with catalog and price list. No obligaion.

WARD HEATER COMPANY

LOS ANGELES, CALIFORNIA

SELL THE BEST . . . . SELL WARD FLOOR FURNACES

Go West -- Gas Man -- Go West!

(Continued from Page 24)

tions were of arrangements which were being made to keep this smelter from freezing its metal. It takes emergencies such as these to show how gas men operate to protect their own and the customers' interest.

I had the opportunity of a short visit with Robert W. Hendee, chairman of the Natural Gas Department of the American Gas Association, at his office in Colorado Springs, and learned that he hopes to make the year 1937 better than ever as far as the gas business is concerned in the Natural Gas Department.

The writer next spent one of the most enjoyable days of the entire trip at the Public Service Co. of Colorado, Denver, a property of the Cities Service Co. The writer had known, of course, of the Denver plan of gas distribution, but had never realized its possibilities in a city so laid out as Denver. Where it can be operated, it is really an ideal system. It consists of small intermediate pressure lines with individual house regulators. The pressures are controlled by the "round the block" method. It is simple but entirely effective and, I believe, less expensive. Of course this system cannot be adopted in all properties, but it certainly is worthy of investigation by the industry at large.

While making this trip of investigating how other properties operate, the writer not only observed operating practices, but also studied management and sales practices.

Denver is a combination gas and electric property, and the two departments are expected to stand on their own feet. Some time ago a plan was devised whereby a large auditorium known as the Electric Institute, was fitted out for demonstration of electrical appliances. This room is available at all times for meetings of ladies clubs, organizations, etc., and has been of untold value to the company.

Recently, however, another room has been fitted out in the latest, most modernistic manner, and this is called the Gas Hospitality House. Here each afternoon a short musical radio program, stressing company service, is sent out over the air. Then, after the radio program is completed, a cooking demonstration is given by the home service director, Mrs. Vera Alt. The entire room is beautifully lighted, allowing the lights to be thrown on any particular appliance at the will of the person in charge. The room was designed by a noted architect and was built by the local organization. This was the most modern and progressive piece of equipment the writer has seen in his 27 years in the industry. The room cost $20,000 and would be a credit to any national organization. It is producing wonderful results at a very low cost. The writer attended a broadcast and was particularly impressed. There was standing room only for those arriving late.

It can be very readily realized that a trip such as this was very much worth while. Many things can be learned by observing how others use their talents and make use of their opportunities. The writer took notes covering better than 100 pages and his only regret is that he cannot tell others all he learned on this trip. In many ways the engineers, sales managers and executives and their subordinates on the West Coast are well ahead of the advancing line of progress being produced in the gas industry.

My only advice, therefore is the modern adaptation pertaining to the industry—GO WEST—GAS MAN—GO WEST.

■ ■

Line Extended 5½ Miles by Tucson Company

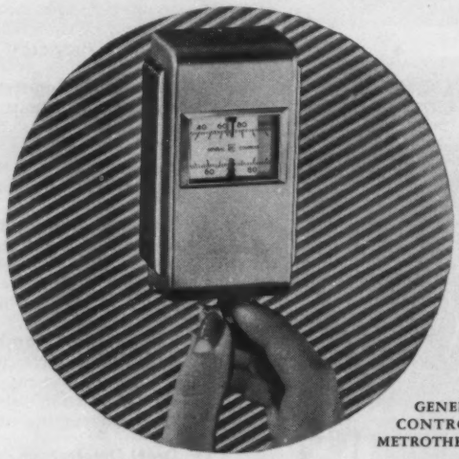
A 5½-mile, $20,000 extension to serve more than 200 customers is under construction by Tucson Gas, Electric Light and Power Co., Tucson, Ariz., according to announcement to the press by Max Pooler, general manager of the utility.

The line will extend to the Desert Sanatorium from Park Avenue, crossing the grounds of the University of Arizona. The company will pipe gas from the main line to the university's military stables.

■ ■

St. Olaf Adds Gas Heat

A 420-hp. boiler with gas burner is being installed at St. Olaf College, Northfield, Minn., according to P. O. Holland, treasurer. This is the first time the college has used gas for heating, but the fuel has previously been used for cooking and other purposes. The college buys its gas from Northern States Power Co., which obtains it from Northern Natural Gas Co.



GENERAL CONTROLS METROTHERM

"At home" in any drawing room!

Dull silver, trimmed with chrome, blends with prevailing white and pastel shades of the modern room, or the warm darker tones of the English type.

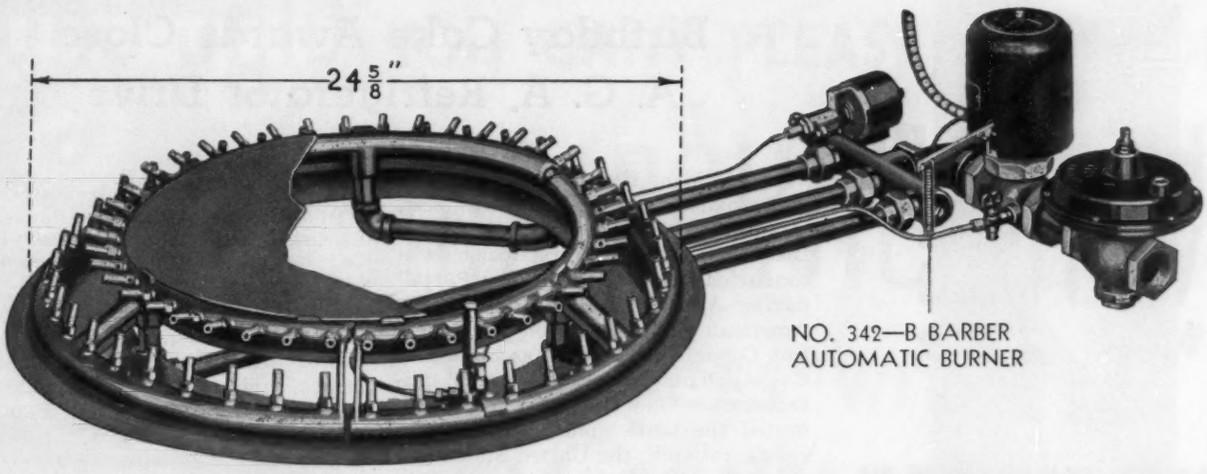
HERE

OR HERE

A PRODUCT OF GENERAL CONTROLS

NEW YORK • CLEVELAND • SAN FRANCISCO • KANSAS CITY

ADJUSTABLE HEAT ACCELERATION • LOW THERMAL INERTIA



NO. 342—B BARBER
AUTOMATIC BURNER

Barber Offers Heating Equipment Dealers a Clean Product and a Clean Deal

Good news travels fast. Mention Barber Gas Conversion Burners to anyone—and the chances are he knows their name and reputation. Naturally, it's easier and more profitable for you to SELL Barber Burners.

We take great satisfaction in our host of loyal Barber dealers. It is our purpose to provide these concerns, old and new, with even closer and more thorough cooperation from the home office. Constructive sales aids and selling supervision will be furnished wherever requested, so that all Barber dealers may enjoy a profit commensurate with the superiority of the Burner they sponsor. Proper protection will be given to distributors and preferred dealers in restricted territories. Perhaps there is an opportunity in YOUR neighborhood for generous profit. Why not write us?

The "B" Model shown above is built in eight different sizes to accommodate round grate diameters from 12" to 34". Models are also Tailor-made to SUIT and FIT grate dimensions of oblong furnaces and boilers, to insure a "scrubbing" flame action against the side walls of firebox. Barber's 1900° Fahrenheit Flame Temperature produces the highest possible efficiency and economy. Equipped with Baltimore Safety Pilot for positive and accurate Safety Control. Furnished for either Manual or Thermostatic regulation. Listed in the A. G. A. Directory of Approved Appliances.

Ask for Illustrated Catalog and Price List on Conversion Burners for Furnaces and Boilers, Burner Units for Gas Appliances, and Gas Pressure Regulators.

THE BARBER GAS BURNER COMPANY

3704 Superior Avenue
Cleveland, Ohio

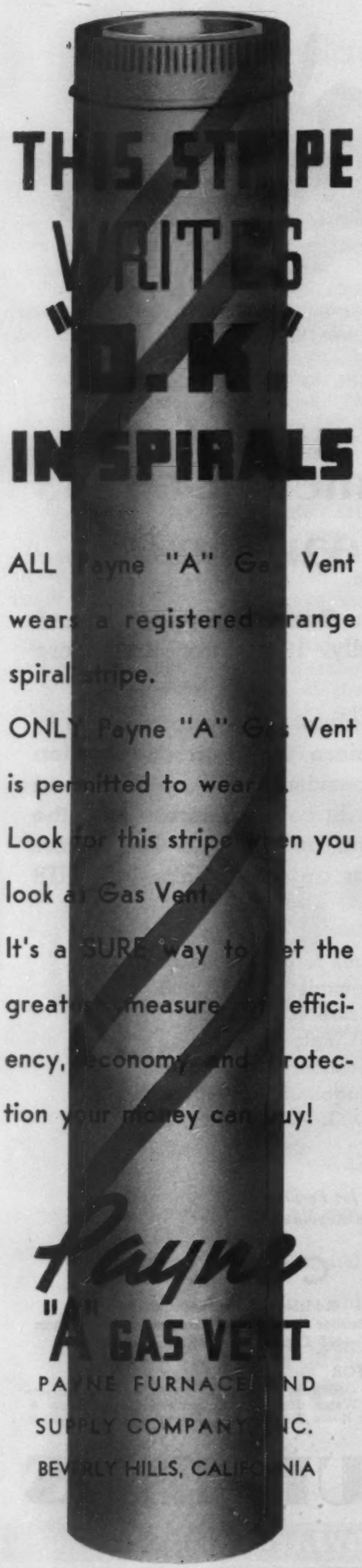
Address Michigan Inquiries to
The Barber Gas Burner Company of Michigan
4475 Cass Ave., Detroit, Michigan

BARBER BURNERS AND REGULATORS ARE DESIGNED FOR

Air Conditioning Equipment • High Pressure Boilers (Tubular and Tubeless) • Bakery Ovens • Doughnut Kettles • Metal Pots • Garage Heaters • Coffee Urns • Hair Dryers • Space Heaters • Floor Furnaces • Clothes Dryers • Water Heaters • Confectioners' Stoves • Vulcanizing Machines • Pressing Machine Boilers • Japanning Ovens • Core Ovens • Banana Room Heaters and Many Other Appliances

BARBER *Automatic* JET GAS BURNERS

FOR WARM AIR FURNACES, STEAM & HOT WATER BOILERS



Birthday Cake Awards Close A. G. A. Refrigerator Drive

NAMES of the prize-winning gas companies have been announced in the contest for the sale of Servel Electrolux refrigerators which was conducted as a "Big Birthday Party" during April, May, and June by the American Gas Association Refrigeration Committee and the Association of Gas Appliance and Equipment Manufacturers. The campaign commemorated the tenth anniversary of gas refrigeration in the United States and a giant symbolic birthday cake was awarded as a trophy to each winning company. The list of winners follows:

DIVISION 1: Washington (D.C.) Gas Light Co.; Consolidated Edison Co. of New York.

DIVISION 2: Providence (R. I.) Gas Co.; Worcester (Mass.) Gas Light Co.; New Haven (Conn.) Gas Light Co.

DIVISION 3: Scranton (Pa.) Spring Brook Water Service Co.; Central Indiana Gas Co., Muncie, Ind.; Florida Public Service Co., Orlando, Fla.

DIVISION 4: Southern California Gas Co., Los Angeles; Detroit (Mich.) City Gas Co.; Ohio Fuel Gas Co., Columbus.

DIVISION 5: Greensboro Gas Co., Brownsville, Pa.; Grand Rapids (Mich.) Gas Light Co.; Manufacturers Light and Heat Co., Bellevue, Pa.

DIVISION 6: North Penn Gas Co., Port Allegany, Pa.; Ohio Fuel Gas Co., Lorain group; Manufacturers Light & Heat Co., Ellwood City Branch.

DIVISION 7: Virginia Gas District Corp.—Staunton, Waynesboro, and Covington offices; Manufacturers Light & Heat Co.—Chester, W. Va., and Wellsville, Ohio, branches; Arkansas Louisiana Gas Co.

DIVISION 8: Consumers Power Co., Lansing, Mich.; Central Illinois Light Co., Springfield, Ill.; Michigan Fuel and Light Co., Benton Harbor, Mich.

Division 1 comprised seven metropolitan utilities on the Atlantic seaboard. Division 2 comprised companies having 30,000 or more meters with a gas rate over 12 cents per therm. Divisions 3, 4, 5 and 6 comprised companies with the same rate, having respectively, 3,001 to 30,000 meters, 70,001 or more meters, 9,000 to 70,000 meters, and 3,001 to 9,000 meters. Companies in Division 7 were those having 3,000 meters or under regardless of the rate per therm. Awards made in Division 8 were based on high records made in the "installations per 10,000 meters class."

Hundreds of individual awards were made to high-scoring members of the sales staffs of companies participating.

These A. G. A. selling contests have been conducted annually since 1933 through the Refrigeration Committee.

Servel, Inc., manufacturers of Servel Electrolux, introduced the gas-operated automatic refrigerator to the American buying public ten years ago. Recently it completed its one-millionth refrigerator in its plant at Evansville, Ind. The company collaborated in the "Big Birthday Party" campaign.

Selling Gas to Syracuse Bakeries

(Continued from Page 36)

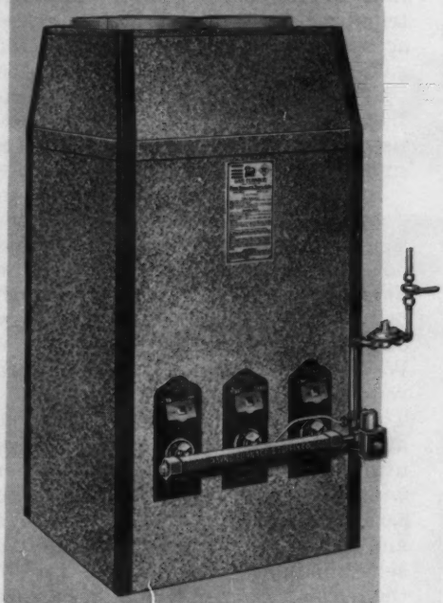
can be justified by the saving in grease and superior product, on baker's stoves, proofing boxes, oven steamers, etc., to use up the first steps in the rate so that the oven gas can be sold on the lower marginal steps. Selling gas does not end with the oven sale, if only because the baker himself will not be willing to stop there. The satisfaction he receives from working with a gas-fired oven will arouse his interest in other applications. Space heat, oven steam, proofing, frying or water heating will almost invariably follow. Every new oven job, conversion and gas designed, in Syracuse during the last two years has been followed by at least one other gas application.

A bakery sales campaign in any gas territory is bound to show results. Gas at 13 cents per therm will equal coal at $12.50 per ton in many cases. Bakers using gas in converted ovens have confessed that they would pay a premium of 50 per cent more than coal if necessary, in order to gain the many advantages of gas. Bakers were sold gas years ago, when rates were higher, and ovens much less efficient and incapable of the fine performance they give today. With our present lower rates, higher oven efficiency, and splendid performance, we should be able to broaden our bakery market appreciably. If we look over our market, study it carefully, and go after this business with all our lures, like the expert trout fisherman in quest of good fishing, we'll be sure to have some fine, highly satisfied catches on our lines.

WHO SAID "YOU CAN'T PLEASE EVERYBODY?"

THIS PAYNE UNIT

··IS ACES WITH GAS COMPANIES AND GAS USERS!



Payne Series "A"
(Unit) Furnace

The Payne Series "A" (Unit) Furnace puts the kind of a load on gas lines that Gas Companies like to see—a uniform load.

The control of this Payne Unit is **selective.** It will heat a whole house or any portion of it at one time. It produces heat only **when** and where it is **needed.**

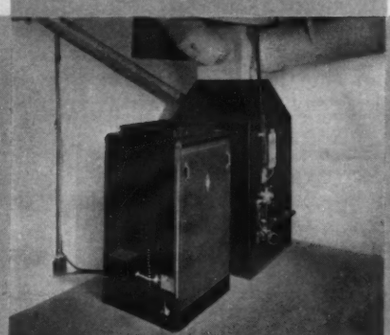
Out of this economy of operation is born **consistency** of use. Payne Unit heat is called into action more times during more months of the year than ordinary heating.

It isn't just a "very" cold weather friend to the Gas Company—or the gas user. Payne Unit heat gives gas lines a more uniform year 'round load—and gas users more uniform year 'round comfort!

So everybody's happy—all the time.

WITH MODERNAIR UNIT

With the simple addition of a Payne Modernair Unit, the Payne Series "A" Furnace provides residential or commercial buildings with refreshing, healthful ventilation. The Modernair Unit is a worthy companion to Payne Unit heat—and a worthy friend of GAS.



Payne Series "A" (Unit) Furnace
With Modernair Unit

Payne

FURNACE & SUPPLY COMPANY, INC. • BEVERLY HILLS, CALIFORNIA

"Three Men in a Boat . . ."

(Continued from Page 17)

motions, proves conformance to the plan. Further confirmation is furnished by the recent entry of leading electric refrigerator manufacturers in the electric range business. This meshes in with the plans of progressive penetration. Competition is taking Step No. 2 now.

Step No. 3 was to have been electric water heating—and may be; but possibly air conditioning, because of wide public interest, may be the next general merchandising step instead.

The reference to this long-range planning and an outline of its various steps is essential to us only to prove that organized industry planning does exist in the electric business; that it has not existed in the gas industry.

No one is particularly due any credit for this development in the electric business or discredit for its lack in the gas business. It has been the result merely of the type of manufacturers that are engaged in the electric industry and not because of supernatural vision.

It should be obvious to the gas industry that this type of sales planning must be given our first consideration. Our planning naturally would not be the penetrative one-two-three-four step type of our competition, because we have to plan to retain business that is now ours at the same time that we launch a counter attack against the effort to obtain our domestic business.

Thinking in terms of the over-all future welfare of our industry, it may be that we must give consideration to resisting the sale of some types of gas appliances, even though they may be load builders, because, though they provide present load, they destroy public acceptance of gas as satisfactory, as best, or as modern.

We may have to develop more effective methods to obtain comprehensive distribution of other types of appliances that are not only load builders but undeniably superior and therefore more beneficial in developing public acceptance of gas appliances—now held to a limited sale because the marketing methods are on a selective rather than on a mass selling basis.

If we must affect mass habit in the use of gas in order to assure our future business, we have got to do a mass selling job by adequate mass methods sooner or later, and now is always the best time.

Just as a suggestion of what we can do in organizing our industry and developing some long-range planning, our plans might be laid on this basis:

The Plan Outlined

Step No. 1 can well be the organization of our manufacturer and distributor branches to enter into group activities for the common support of gas by all. Specifically this can be done by incorporating in sales catalogs, customers sales literature, advertising copy and verbal presentation, support of general gas usage.

Step No. 2 can well be a study to develop the use of some attention-arresting, symbolic types of sales and advertising appeal much along the lines that our competition has adopted, because it is the most effective way of attracting general public attention. We must use less logic and more romance.

Step No. 3 can well be a reasonable attitude toward cooperation with gas utility over-all organization plans, for without this planning there will be no permanent opportunities for expansion and profit in the gas business. Limited self-thinking must be submerged in the over-all general planning, because the present and continued welfare of gas—its acceptance, its use—is more important than any immediate temporary gain for any one.

It is not contended that these so-called one-two-three steps in gas industry planning are the correct ones, although they are important, as each territory may have individual problems of greater importance.

Whatever the order of importance, there is no denying the fact that there is one element of prime importance to our business and that is *organization.*

To repeat: In the gas industry, organization leadership must come from the utilities. Participation and action in the plans developed must come freely and cooperatively from all branches of the gas industry.

The branches can be readily reduced to three that are committed to this business. They are gas utilities, gas equipment manufacturers, and gas appliance manufacturers—and these are the elements that were imaginatively conceived as "Three Men in a Boat."

Oh, yes! There were Three Men and another man in our competitor's boat.

Mueller Gas Era Steel Furnace has outsold every other gas furnace for the past seven years. Long life, economical operation, satisfied customers are the answers.

L. J. MUELLER
FURNACE COMPANY
MILWAUKEE

HIGH CAPACITY—SMALL SIZE!
LOW PRESSURE REGULATORS

Built in TWO Sizes

½ in. Size — over all dimensions only 5 inches.

¾ in. Size — over all dimensions only 6 inches.

Exceptional high output—perfect regulation at all pressures—low lockup. A small size—low cost regulator with highest capacities for all types of gas appliances.

AGA—LISTED
Write for more information.

The H. M. Thermo Control Co.
814 E. 108th St. Los Angeles, Cal.

N. G. E. SERIES 400 BURNER. For small cast iron or steel rectangular fire box boilers. Occupies little head room. Easily manifolded. Operates quietly without vibration. High capacity.

N. G. E. NO. 73-10 BURNER. For small round furnaces (warm air, hot water, steam) and vertical boilers, kettles, etc. Utilizes refractories for maximum heat liberation.

N. G. E.

CONVERSION BURNERS

FOR APPLICATION TO ALL
COMMERCIAL HEATING INSTALLATIONS

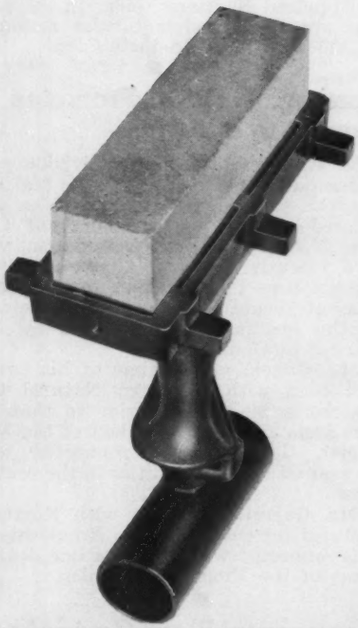
•

SEND FOR OUR VALUABLE COMMERCIAL HEATING BULLETIN

For utilities, the Commercial Heating field represents a large portion of its potential; it therefore offers itself as one of the most vulnerable fronts in a utility load building program.

Natural Gas Equipment has a complete line of gas burners for Commercial Heating services, for installation either as original equipment or for conversion to gas. Copies of a valuable Commercial Heating Bulletin are available upon request.

LOOK TO THE PIONEERS FOR CONTINUED LEADERSHIP



N. G. E. NO. 313 BURNER. Designed particularly for vertically firing Birchfield, Pacific, Kewanee and similar steel boilers. Utilizes refractory head.

N. G. E. TYPE R BURNER. Successfully solves conversion requirements for round furnaces. Full manifolding flexibility. Requires little or no attention.

N. G. E. TYPE W BURNER. For installation in square or rectangular furnaces. Installed with minimum alterations. Easily manifolded.

NATURAL GAS EQUIPMENT, INC.

PETROLEUM SECURITIES BLDG.
LOS ANGELES, CALIF.

1123 HARRISON STREET
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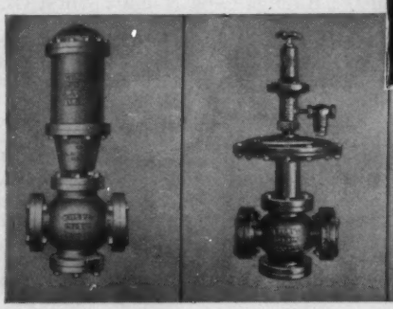
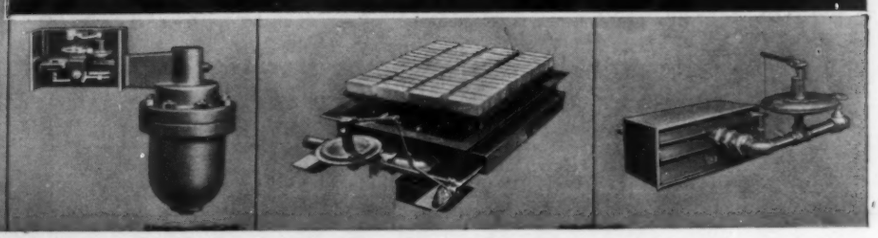
Natural Gas Equipment Co. of Texas, 811 Sterling Bldg., Houston, Texas





Do you recall that we last pictured him as apparently talking to and directing the crew that our imagination permitted us to see? Even during the telling of this story that competitive boat has seemed to come a little nearer to view. The figures are a little clearer. The boat is better outlined. Somehow it does not seem to be as sturdy as our boat. The crew appears to have no better foundation than our crew. It does appear to be in better training, and maybe this is due to rowing harder, attempting to cut down the lead of our boat.

Despite the individualistic technique of our crew we still are making progress and apparently we need only a fourth man in our boat to steer it, to time the stroking of our crew, to continue our present lead or even lengthen it.

Who is the fourth fellow they have, that we need and can have as a coxswain in our boat?

He is *organization.*

■ ■

Carbon Black Took 13% of Natural Gas Used in 1936

The carbon black industry in 1936 enjoyed the best year in its history, exceeding the former record year—1930—by nearly 8 per cent. It was 17 per cent better than 1935.

Total production for 1936 was 411,345,000 pounds; in 1935, it was 352,749,000 pounds. Market demands gained 21 per cent over 1935, going up to 467,736,000 pounds.

Nearly 80 per cent of the 1936 production came from the Texas Panhandle. Wyoming and Oklahoma plants increased their output, but production fell off in Louisiana.

Approximately 13 per cent of the total estimated gas consumed in the United States was used in producing carbon black, or 283,421,000,000 cu. ft. Average yield was 1.45 pounds of carbon black per 1000 cu. ft. of natural gas.

About 67 per cent of the total sales of carbon black was made to domestic consumers, the rest exported.

■ ■

Santa Fe Uses Gas at Newton

The Atchison, Topeka and Santa Fe Railroad will use natural gas for all purposes in its roundhouse and shop at Newton, Kan., according to announcement by The Gas Service Co., Kansas City, Mo., which will supply the gas. The fuel will fire eight boilers and several forges and furnaces. Consumption is estimated at 240,000,000 cu. ft. a year.

■ ■

Order Michigan Flow Survey

The Michigan Public Utilities Commission has ordered a survey of the open flow of gas wells.

Massey Is Sales Manager For American Gas Products

Harold Massey, gas sales engineer, has been appointed general manager of sales of American Gas Products Corp., according to announcement by William T. Rasch, president. Mr. Massey takes the position left vacant by the sudden death of H. H. Dugdale, vice-president. Mr. Massey has been working closely with Mr. Dugdale for several years.

H. MASSEY

Mr. Massey entered the gas industry in 1923 upon graduation from Stevens Institute of Technology when he became associated with the old William M. Crane Co. in the manufacturing department. Later, when that company merged and became The Standard Gas Equipment Corp., Mr. Massey became manager of the designing and engineering department. In 1930 he entered the employ of the American Radiator Co. manufacturing department as designer of gas appliances. He was transferred later to American Gas Products Corp. as sales engineer when that company became a part of the American Radiator & Standard Sanitary Corp. In 1936 he was appointed assistant sales manager of American Gas Products Corp.

■ ■

Northern Natural Promotes Garrett to Lincoln

M. H. Garrett, formerly division pipe line superintendent of Northern Natural Gas Co. at Ogden, Iowa, has been appointed division superintendent at Lincoln, Neb., to succeed W. J. Gagen, who died recently. D. J. Wallace, who was district pipe line foreman for the company at Meade, Kan., has been appointed to the position formerly held by Mr. Garrett at Ogden.

Mr. Gagen, at the time of his death, had been with Northern Natural Gas Co. for seven years. Prior to that, he was assistant superintendent of the Fort Worth Gas Co. and connected with several oil and gas utilities in the central west.

Mr. Garrett has been with Northern Natural for several years. Previously he was connected with the pipe line department of the Empire companies.

■ ■

Continental Plans Casinghead Plant for Billings Field

Plans for immediate construction by Continental Oil Co. of a casinghead plant in the Billings field, Noble County, Oklahoma, to process gas from the wells of Continental, Tidewater Oil Co., and other producers in the field, have been announced at Continental's offices in Ponca City.

The plant, which will cost approximately $200,000, will be of the most modern design and capable of processing 20,000,000 cu. ft. of gas daily. Plans will include sufficient machinery for gas repressuring operations, and for delivery of residue gas at high pressures to gas distribution systems in the vicinity of the field.

Look for this big red CIRCULAR Trade Mark to make sure you are buying the ORIGINAL Insulated Aluminum GAS VENT and FLUE PIPE.

This mark of quality and efficiency appears only on METALBESTOS—the pipe without an equal.

PATENTED NO. 2076210

METALBESTOS

TRADE MARK

MANUFACTURED BY

WILLIAMS-WALLACE CO.

160 HOOPER ST. SAN FRANCISCO

GAS STOPS

G-491—High Pressure Roundway Gas Main Stop Male and Female

G-207 Solid Lever Standard Gas Stop

"by Kitson"

Surest Guarantee of Quality for Forty Years!

KITSON COMPANY

2409-15 Westmoreland St. Philadelphia, Pa.

Kitson Safety Devices (Lovekin Patents) for Domestic Water Heaters

Quality Brass Goods for Gas, Water and All Plumbing Uses

ESTABLISHED 1897

Look for the K-CO TRADE MARK

COOPERATIVE LOAD BUILDING

P. C. G. A.

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CLIFFORD JOHNSTONE Managing Director Pacific Coast Gas Association

THE JONES FAMILY SCORES SMASH HIT!

Opens Fall Season With Dramatic Reminder That Gas Heating Is Most Modern, Efficient, Economical

Again the popular "Jones Family" of the movies lends its prestig to our domestic advertising — this message that will reach mo than one-fourth million famil Your Cooperative Advertis Commitee is now completing 1937 regional campaign domestic advertisi sage that will rea fourth m

. . . I'll order gas heating tomorrow"

TRUST the younger generation to know what's *modern.* And how can Dad resist when they "gang up" on him with these unanswerable arguments: Gas is the cleanest, quickest, most convenient heating fuel. Control may be completely automatic (thermostat) or semi-automatic (push button)—eliminating all work—assuring constantly *uniform* temperature. Gas heating requires no mussy fuel-deliveries or storage. You pay only for what you use as you use it—at rates that assure modest monthly bills. Thrift-terms of course. *Ease and comfort on the bargain counter!* ★ *Now, before the autumn rush, is the time to modernize your heating—with Gas.* Special inducements for early installation in many communities. Inquire of your Gas Company or Appliance Dealer.

INVESTIGATE
such new developments as

SMALL CABINET TYPE UNIT HEATERS WITH FORCED AIR CIRCULATION (FITTING ANY NOOK OR CLOSET, UPSTAIRS OR DOWN)

GAS HEATING COMBINED WITH AIR-FILTERING AND, IF DESIRED, COOLING—FOR SUMMER AS WELL AS WINTER COMFORT

INEXPENSIVE FLOOR OR WALL UNITS, HEATING ONE ROOM OR SEVERAL

COMPLETE CENTRAL HEATING PLANTS, SO CLEAN AND ATTRACTIVE THEY ACTUALLY ADORN BASEMENT PLAYROOMS

☆ *Posed by members of the popular "Jones Family" cast (Twentieth Century-Fox Studios). See this "regular" family in their newest laughfest, "HOT WATER."*

Gas
THE MODERN FUEL

HEATING • COOKING • HOT WATER • REFRIGERATION

Convention Tour of Laboratories Includes Two Short Programs

TWO one-hour programs, followed by thorough inspection trips, will be held at the A. G. A. Testing Laboratories in Cleveland, Ohio, on Wednesday morning, September 29, as a major event of the American Gas Association Convention which convenes in Cleveland on September 27 and continues to October 1. The morning at the Laboratories will take the place of a general session. This is the first time the A. G. A. convention has been held in Cleveland and it affords a rare opportunity for gas men to inspect the testing headquarters, those in charge point out.

During the programs, brief talks will be made by B. J. Mullaney, chairman of the Special Committee on Laboratories; R. W. Gallagher, vice-president, Standard Oil Co. of New Jersey and first chairman of the Laboratories' Managing Committee; and R. M. Conner, director of the Laboratories. J. S. DeHart, present chairman of the Managing Committee, will preside.

Three general sessions will be held during the convention. The first, on September 28, will include an address by President Herman Russell. The general session on Wednesday evening will present prominent executives in the gas industry and speakers of note from other industries.

On Thursday, at the Cleveland Hotel, a luncheon symposium will be held on the national advertising program. T. J. Strickler, chairman of the Committee to Conduct National Advertising, will speak briefly. Two representatives of gas companies that have tied in effectively with the national advertising program will tell what use they have made of such material.

The Natural Gas Department will lead off the sectional and departmental programs, convening in morning and afternoon sessions on the opening day of the convention. No other meetings will be held that day.

The Accounting Section will meet on Tuesday and Thursday afternoons, with an informal luncheon conference on Wednesday.

The Commercial Section will hold three afternoon sessions. During these meetings, prizes will be awarded to winners of the national refrigeration sales contest, and certificates of merit will be presented to the 20 winners in the gas range sales contest.

The Home Service Department will meet Tuesday afternoon and again at breakfast Wednesday morning at the Statler Hotel.

Three full afternoon sessions will be held by the Industrial Gas Section, with the theme, "Gas as the ultimate industrial fuel." Two sessions will be devoted to five-minute presentations. The Industrial Gas Club luncheon will be held Tuesday at the Statler. This section will also be represented on programs for the general sessions and the Natural Gas Department.

The Technical Section will meet on three afternoons. Of special interest to natural gas men will be the papers on "Scrubbing in the Natural Gas Industry," which will include the removal of gasoline from natural gas, "How Polymerization of Oil Gases Will Affect the Gas Man," and "Problems of Regulator Freezing," which will deal with the formation of hydrates in natural gas lines and their prevention.

The President's reception will be held Tuesday evening in the ballroom of the Statler.

■ ■

Sedgwick, Kan., Is Building Distribution System

Construction of a $25,000 municipal gas distributing system in Sedgwick, Kan., was to start the latter part of August, according to Mayor H. E. Hickerson. An 8-inch pipe will bring gas approximately 10 miles from the Burrton field of Drillers Gas Co.

The city expects to serve about 200 meters the first year. Bonds for the gas system were voted at a special midsummer election.

■ ■

Kaplan Connects 200 Meters As $65,000 System Finished

Kaplan, La., has completed a $65,000 natural gas distribution system and approximately 200 meters are being connected, according to G. J. Montgomery, resident engineer.

The city built nine miles of 3-inch transmission line from Kaplan to Abbeville to connect with the United Gas Co. line. The distribution system is approximately 19 miles long.

■ ■

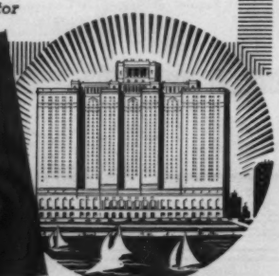
Gas Soon for Booneville, Ark.

Announcement of plans for serving natural gas in Booneville, Ark., will probably be made about October 15 according to Dan W. Johnston, of Clarksville. The city council recently granted him and his associates a franchise.

...MEN IN THE MAJOR LEAGUES

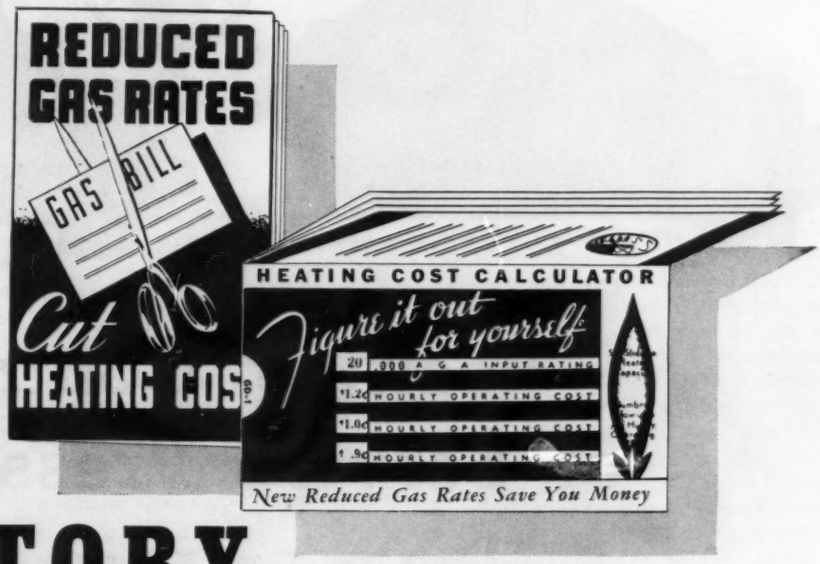
Those men every community regards as leaders . . . in turn demand similar superior performance. In Chicago these men find at The Stevens the atmosphere . . . the comfort they demand of a hotel. That's the reason they call The Stevens, "America's Grand Hotel." Their strongest endorsements are their repeated autographs on our register.

OTTO K. EITEL, *Managing Director*



STEVENS
"America's Grand Hotel"
CHICAGO

Room, with Bath, from $3



In P.G.&E TERRITORY gas heat is *"KNOWN COST HEAT"*

To the gas heating trade in the metropolitan bay area, it may be interesting to know that an additional supply of Gas Heating Cost Calculators (those handy little slide-rule gadgets we distributed last year) are now on hand.

Use them and have your salesmen use them. Mention them in your advertising. Supplement every sales talk with a "slide rule" demonstration that gas fuel is LOW COST fuel . . . not only low cost, but KNOWN COST—no hidden extras, no unfortunate repair bills, no unexpected changes in price.

P. G. and E. offices in San Francisco and Oakland are able to supply you with any reasonable quantity. Make the most of this valuable free sales-help. Order your requirements TODAY.

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

Owned • Operated • Managed by Californians

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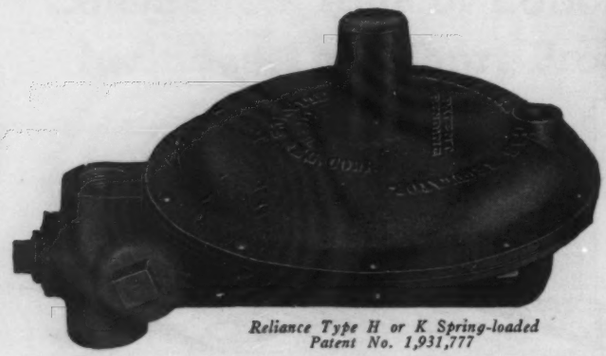


Reliance Type H or K Spring-loaded
Patent No. 1,931,777

Reliance Type H or K Dead-weight

Positive Control of Service Pressures

Reliance Type "H" and "K" Regulators have all these desirable features: sensitive pressure regulation; positive lock-up when consumption stops; minimum pressure loss in the Regulator; large flow capacity; rugged construction and long life.

Specially designed toggle action gives a longer and more powerful thrust on valve seat and results in lower lock-up pressures. Valve seats can be removed or changed in size without disassembling the Regulator. Diaphragms can be furnished in leather or composition. Made in 8 sizes, from ¾" to 2"; spring or weight loaded; fully described in Bulletin No. 38.

Reliance Regulators are made in complete lines for domestic, district and industrial purposes, for natural, manufactured, butane, propane and liquid petroleum gases.

Embodying refined engineering principles and the latest features in design, these Regulators have fully demonstrated that they have a better performance record, larger capacity and lower lock-up pressures than any other regulator of the same size and type. They are made with or without mercury seal attached and can be supplied with internal mechanical relief where desired. Valve seats can be renewed or changed as to size simply by removing end plug and inserting a hexagon wrench into the recess in the valve seat body. The valves are very accessible. A plug is provided in the side of the Regulator for quick inspection; and if necessary, the valve seat disc can be removed and the valve seat cleaned, returning the Regulator to service in minimum time.

A standard pipe plug on the high pressure side of the Regulator permits the attachment of a gauge for taking service pressures, and service lines can be blown free of dirt, scale, etc., through this opening. In distribution systems where dust troubles exist, the type "H" Regulator is extremely economical. Valves can be changed and dust blown out in a short time; it is seldom necessary to remove the Regulator from the line and take it to the shop for repairs. Where the side inlet is used for service connection, the bottom connection, when plugged, acts as an accumulation reservoir for dust and dirt. All Reliance Regulators are made from special alloyed castings with unexcelled qualities.

Send for Bulletin No. 38

1000 MERIDIAN AVENUE ALHAMBRA, CALIFORNIA

RELIANCE REGULATORS

The Double Orifice Meter

By B. G. WILLIAMS
Southern California Gas Company*

IF THE jet issuing from an orifice is further constricted, the form of the curve of the discharge coefficient as a function of the Reynold's Number may be changed. From the knowledge of this fact, in this paper, a new throttling meter is developed by placing two standard orifices in series to form a double orifice which is distinguished by a far-reaching independence of the coefficient on the Reynold's Number for all area ratios of practical importance.

B. G. WILLIAMS

The purpose of this work was to determine whether the discharge coefficients of the standard orifice differ by more than the basic tolerance from their accurate constant value with all the orifice dimensions permitted by the Regeln and at Reynold's Numbers above the tolerance limits.

THIS IS A BRIEF review of tests made in Germany and other countries. The tests are described in detail in papers published by Dr. Ing. G. Ruppel VDI, Berlin-Siemensstadt and G. Walzholtz VDI, Kiel. The reports have been translated into English by Lyman M. Van der Pyl of the Pittsburgh Equitable Meter Company.—Author.

The tests were conducted on a high degree of accuracy which made possible the classification of effects which were previously unknown. These refer to the thickness of plates, coefficient changes with reference to the Reynold's Number, and tests made on the orifice meter with two discs.

For orifice meters built according to the present-day standards, the discharge coefficients are practically constant above a certain value of the Reynold's number, there being a slight decrease in the value of the coefficient as the Reynold's Number becomes greater. However, this decrease is so small that the use of an average coefficient does not perceptibly affect the accuracy of the measurement.

The Reynolds Number as herein used, applies to the pipe diameter. This is contrary to the practice in gas measurement on the Pacific Coast which refers it to the orifice diameter.

In making the tests referred to, it was necessary to use plates having the correct thickness. The procedure to determine the allowable thickness is of especial interest. In some instances, the initial tests were made by using plates with a thickness as great as one-tenth of the diameter of the pipe. For certain relations of orifice to pipe diameters, these plates caused an error as great as 8 per cent. The plates were then beveled on the downstream side, and tests were continued until additional beveling did not change the value of the discharge coefficient. When this condition was

* Presented before the Southern California Meter Association, Los Angeles, Calif., July 22, 1937.

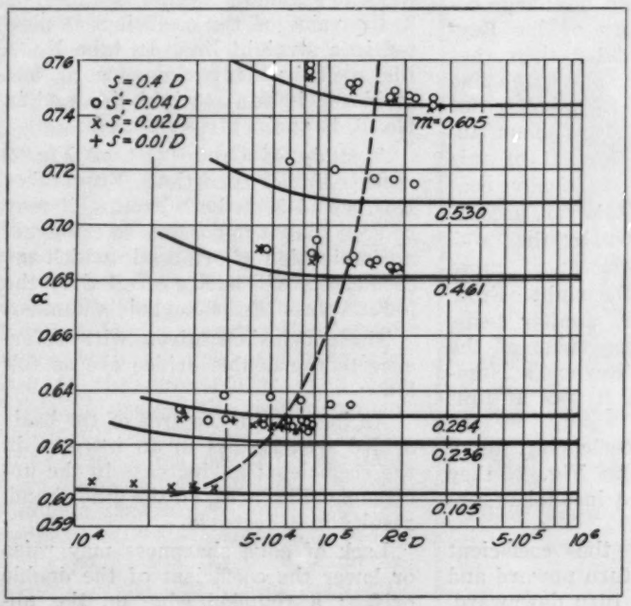


FIG. 1

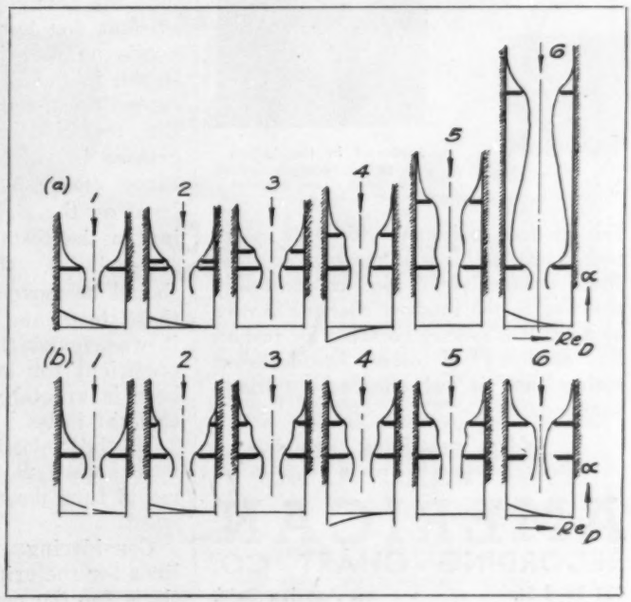
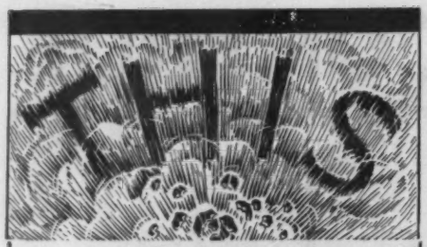


FIG. 2



CAN'T HAPPEN HERE

The ultimate in safety is achieved by the new Connelly MERCURY SEAL VALVE—Instant and positive shut-off if pressure drops below minimum, or if an interruption occurs in gas supply. The mercury seals the valve shut—and it can only be opened manually by the inspector with key. It's tamper proof. Placed ahead of meter on service lines or used for venting high pressure house governors. Write for Bulletin No. 302-A.

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IRON SPONGE & GOVERNOR CO.
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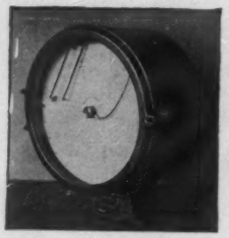
ACCURACY plus PORTABILITY



ANUBIS

Produced in the Laboratories of George Sydney Binckley, Los Angeles.

This modern instrument for both gases and liquids, employs no mercury or other liquid column, yet it remains constantly sensitive to the smallest changes in rate of flow. It is readily portable for testing the accuracy of other field-installed meters; and is not affected by rough handling.

A folder containing complete details is available upon request.

AMERICAN
RECORDING CHART CO.
428 Boyd St. Los Angeles, Calif.

reached, the thick plates beveled gave results equally accurate with the thin plates bored without the bevel.

It is stated that except for trivial deviations, the American tests gave an excellent confirmation of the discharge coefficients laid down by the Regeln.

Practice in Germany

Corner taps are in general use in Germany. Regarding the two types used in the United States, the German engineers prefer the flange taps to the pipe taps. They find that the tolerance for pipe taps is greater than for flange taps.

The empirically determined coefficients for both the orifice and nozzle may be said to be constant only in the range of higher Reynold's Numbers. The coefficients for orifices increase for lower values of the Reynold's Number, but, the coefficients for nozzles decrease for lower values of the Reynold's Number.

In Fig. 1, the value of the discharge coefficient is plotted as the ordinate and the value of the Reynold's Number, as the abscissae. On this the coefficients are plotted according to the Regeln for various values of the Reynold's Number. These are shown for several relations of area of the orifice to the area of the pipe. This should not be confused with the relation of the diameter of the orifice to the diameter of the pipe which is commonly used in the United States. The small "x" marks and circles show the value of the coefficient determined by tests which are described in Dr. Ruppel's paper. These are plotted to show that the change in the discharge coefficient for low values of the Reynold's number is greater than that shown in the Regeln. The curve line extending upward is the tolerance of the coefficient. The coefficient increases in value on the left of this curve and remains practically constant on the right. However, according to the tests shown by the "x's" and circles, this tolerance curve should be moved to the right. From these tests and many similar tests, it was found that the value of the coefficient for lower Reynold's Numbers is greater than it was at first thought to be.

If the velocity coefficients for a nozzle were plotted on Fig. 1, they would turn downward instead of upward.

Considering that the coefficient lines for the orifices turn upward and those for the nozzles turn downward, there should be some form of constriction, the coefficient of which would plot a straight line.

Experiments for this were made both with specially constructed nozzles and with the double orifice as shown in Fig. 2, which illustrates several pipes, each with a different type of orifice constriction.

In row (a), tube No. 1 is constructed with a single orifice. In tube No. 2 a second orifice has been set close to the first one. This produces a slight effect on the flow line of the fluid. In tubes Nos. 3, 4, etc., the distances between the orifices increase until in tube No. 6, the space between the orifices is so great that the flow line is scarcely affected.

In row (b), the orifices are kept at the same distance apart and the change is made in the size of the upstream orifice, which is gradually decreased until the upstream orifice becomes so small that the flow line is not affected by the downstream orifice. Note that in the (a) group the orifices are kept the same size, the change being only in the distances apart while in the (b) group, the distances apart remain the same and the change is in the size of the upstream orifice.

At the lower end of each pipe a curve of the discharge coefficient is plotted. This is done by using the same ordinates and abscissae as were used in Fig. 1.

Again referring to Fig. 2, for tube No. 1 in the (a) group, the action of the discharge coefficient is similar to the coefficient curves shown on Fig. 1. For tube No. 2, the change in the value of the coefficient is less pronounced for the lower values of the Reynold's number; while in tube No. 3, the value of the coefficient is plotted in a straight line. In tube No. 4 the coefficient turns downward and in No. 5, it is a straight line and in No. 6, it again turns upward.

A study of Group (b) of Fig. 2 reveals similar conditions. From tubes Nos. 3 and 5, in both groups, it may be seen that it is possible to construct a combination of orifices in which the coefficients will not be affected by the lower values of the Reynold's number.

The conclusions given with reference to the double orifice are as follows:

An increase in the area of the basic orifice area results in an increase in the coefficient; an increase in the upstream orifice area, on the other hand, results in a decrease.

Lack of edge sharpness may raise or lower the coefficient of the double orifice; a rounded edge on the upstream orifice reduces the coefficient,

a rounded edge on the basic orifice increases the coefficient. The effects of rounded edges on both orifices are thus always contrary and partially compensating, so that the double orifice is less sensitive than the standard orifice in this respect.

Deviation of the true diameter D′ from the nominal diameter D results in faulty measurement with the double orifice. With D′>D, on the one hand, the effect of the upstream orifice on the flow increases, as does the coefficient; on the other hand, when the true ratio of areas of the basic orifice decreases, the coefficient also decreases. With D′<D, the conditions are reversed. The two effects are always opposed, but the effect of the up-stream orifice outweighs the other. From the relation of the coefficient of the double orifice to the dimensional constancy of the pipe diameter, the coefficient of the double orifice is less sensitive than the coefficient of the standard orifice to changes of the pipe calibre from the theoretical value.

Double Orifice Position

The wall roughness affects the profile of the stream and so the discharge factor, in such a way as to decrease the free cross-sectional area of the pipe and always, accordingly, to decrease the coefficient.

The double orifice takes a middle position between the orifice and the nozzle with respect to the sensitivity to changes in the most favorable metering arrangement; as is well known, the nozzle is less sensitive to these effects than the orifice. Thus, in contrast to the standard orifice these deviations from the theoretical values may increase or lower the coefficient of the double orifice.

It has already been observed with certain installation faults, such as using a too small mounting ring projecting into the pipe, that the dependency of the coefficient on the Reynold's number changes. The consequent possibility of influencing the course of the coefficient by inserting an additional standard orifice into the flow led to the construction of an orifice with an upstream ring and then to the development of a new throttling meter, the double orifice, which, for all practically important ratios of area, has coefficients constant down to definitely smaller Reynolds Numbers than are possible with the standard orifice. In over 1000 tests, conducted in 1932-33 with water in the testing departments of the Hartman & Braun A.-G., Frankfort a. M., were determined the measurements of those double orifices which have constant discharge coefficients. The validity of the design requirement curves for all pipe sizes was proven in several series of control tests in different types and with several ratios of area ($m = 0.1$ to 0.6).

The double orifice, which was developed in two designs, varying with the pipe size, takes a position between the orifice and the nozzle in every particular that was investigated. This applies both to the form of coefficient curve as a function of the Reynold's Number and the absolute value of the coefficient as well as to the permanent pressure loss and the effect on the coefficient of deviations from the most favorable metering arrangement.

■ ■

Peoples Gas Appoints Naylor To Meter Reading Post

John E. Naylor has been appointed assistant superintendent of the meter reading department of The Peoples Gas Light and Coke Co., Chicago. He succeeds Charles L. Sullivan, who is now superintendent of the newly created customers' department. Mr. Naylor, who ends 14 years of service, was assistant superintendent of the meter repair shop.

Ivan G. Anderson, who has been with the company for more than 17 years, has been appointed assistant superintendent of the meter repair shop.

Cowan Addresses S.C.M.A. On Viscous Liquids

"MEASUREMENT of Viscous Liquids by Orifice Meter" was discussed by W. L. Cowan, test engineer, Union Oil Co., at the August meeting of the Southern California Meter Association, held at the Van Matre Inn, Huntington Park, on August 26. Mr. Cowan, who illustrated his address with slides, presented a number of actual problems to illustrate the application of data he has collected.

The program also featured W. H. "Bill" Spaulding, head football coach at the University of California at Los Angeles, who talked about the coming football season.

Entertainment was furnished through the courtesy of the Commercial Iron Works. Oliver Muff was master of ceremonies.

Orders are coming in rapidly, it was announced, for the 1937 edition of the S. C. M. A. Handbook, containing data on the measurement of air, gas, oil, and water streams, and for the handbook on natural gas measurement data. Prices of the books to S. C. M. A. members are $2.50 and $.50 respectively; to non-members, $3.00 and $1.00 respectively. Copies may be obtained from James Dunn, 428 Boyd Street, Los Angeles, Calif.

■ ■

Rogers Gas Co. Transfer O.K.

The West Virginia Public Service Commission has given permission to the transfer of all assets of Rogers Gas Co., Clay, W. Va., to Valley Gas Co.

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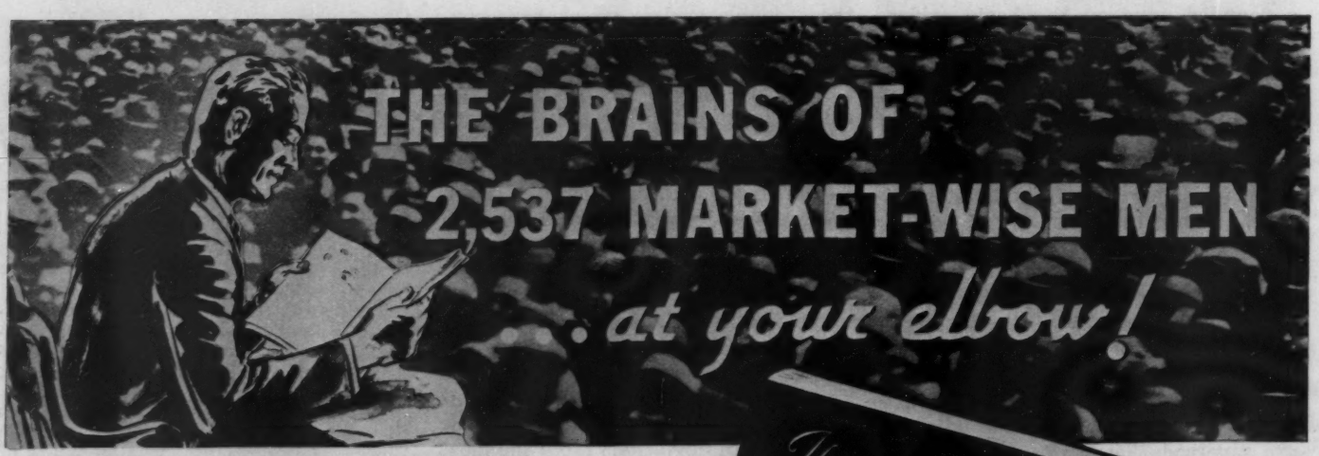

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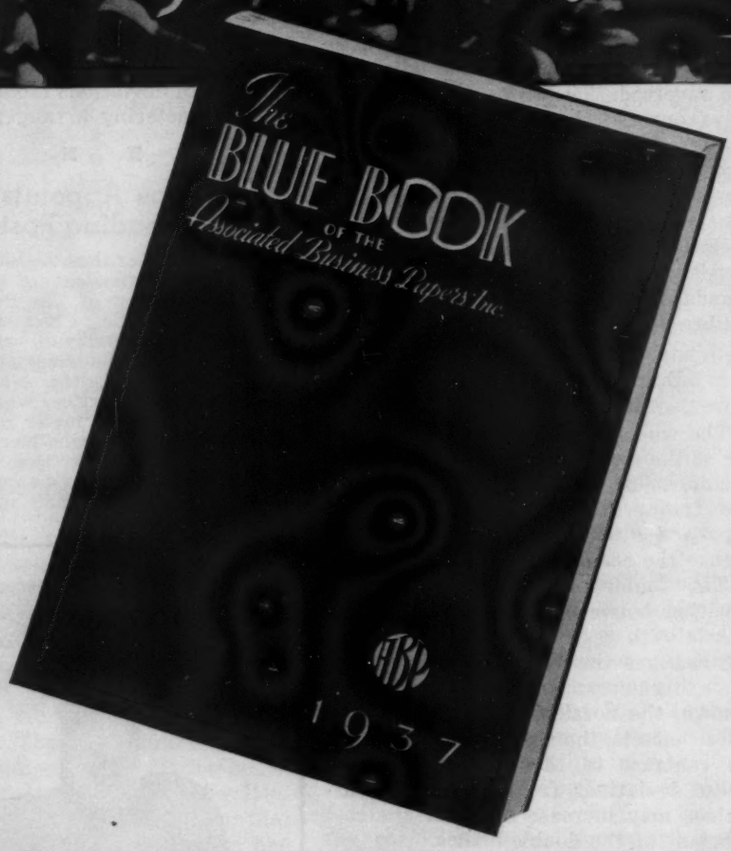

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BUTANE-PROPANE NEWS

Col. Burrell Vice-President Atlantic States Gas Co.

G. A. BURRELL

COLONEL George Arthur Burrell, of Burrell-Mase Engineering Co., Pittsburgh, Pa., was recently elected vice-president of Atlantic States Gas Co., Inc., New York City.

Colonel Burrell, who discovered the supply of helium in Texas in 1918, has been engaged in research work in the gas and petroleum fields for many years since attending Ohio State University. From 1904 to 1908 he was a chemist with the U. S. Geological Survey, and from 1908 to 1916 was in charge of research work on gas, mine gas, natural gas, and gasoline for the U. S. Bureau of Mines.

From 1916 to 1933 Colonel Burrell acted as consulting engineer in the petroleum and natural gas fields. During 1930-31, he was retained by the Russian government to modernize its natural gas industry. During the war, as a Colonel in the United States Army, he was in charge of all research work on chemical warfare. He is the inventor of a gas detector and a gas analyzer.

The Atlantic States Gas Co. serves liquefied petroleum gas in New York and Pennsylvania.

■ ■

Montana-Dakota Utilities Co. Builds Butane Plant in N. D.

A $19,000 butane plant to replace the manufactured gas plant will be completed in Valley City, N. D., about September 1 by Montana-Dakota Utilities Co., according to Cecil W. Smith, gas engineer.

Construction started the latter part of July. A building of fabricated steel is being erected to house three tanks, largest of which will be 65 feet long and weigh 65,000 pounds. The other two tanks will weigh 40,000 pounds each.

Approximately 600 meters were served with manufactured gas.

A detailed account of the installation of this plant is being prepared for G A S by Mr. Smith and will appear in an early issue.

■ ■

N. B. G. A. In Cleveland

The National Bottled Gas Association will meet in Cleveland, Ohio, during the American Gas Association Convention, which convenes the week of September 27. Time for the N. B. G. A. has not, as *G A S* goes to press, been definitely assigned, but the meeting is tentatively set for September 28. The hotel has not yet been announced.

One of the Modern Cookery Shows conducted by Shell Petroleum Corp. in five states to advertise its bottled gas, Shellane.

Shell Corp. Promotes 100 Shellane Cooking Schools

SHELL Petroleum Corp., distributing a bottled gas under the trade name of Shellane, has conducted approximately 100 modern cookery shows in communities in Iowa, southern Minnesota, southern Wisconsin, Illinois, and Missouri. Most of the towns are without manufactured or natural gas service, according to C. B. Acox of the Shellane Department, inasmuch as the company's sales story is directed to residents off the gas mains.

Most Shellane distributors have conducted two shows each day, one in the afternoon, and the other in the evening. A greater number of persons attend the evening demonstration, says Mr. Acox, and a greater number of prospects are closed then. The company thinks that the explanation for this may possibly be that the housewife attends the afternoon show and is so impressed that she returns for the evening demonstration and brings her husband with her.

Cards with questions and a place for signature are distributed toward the close of the program. The company has found that it obtains more intelligent answers when the cards are passed out after most of the demonstration has been completed than it does when the cards are handed out at the door as the visitor enters.

Numerous small prizes, Mr. Acox adds, attract more attention than one major prize. The food cooked is often distributed in addition to the other prizes.

A Shellane modern cookery show is advertised for two or three weeks in advance by the local Shellane distributor. Newspapers are supplied with advertising mats and a publicity story about the demonstrator. Two demonstrators have been in the field conducting from four to five shows weekly.

■ ■

Conservation Pact Extended By Congress to 1939

Extending the Interstate Compact to Conserve Oil and Gas for two years to September 1, 1939, the joint House and Senate resolution was signed by President Roosevelt early in August. It is Public Act No. 145.

The compact, renewal of which was executed on May 10, 1937, by the governors of Oklahoma, Texas, Kansas, New Mexico, and Colorado, was originally executed in 1935.

■ ■

Carbon Permit Granted Marsh

Permission to manufacture carbon black in Texas County, Oklahoma, has been granted by the Oklahoma Corporation Commission to the Hagy-Harrington-Marsh Carbon Co., Amarillo, Texas, and drilling crews have started work on four test wells to locate the most productive gas areas. Location of the carbon and gasoline plants will be determined later, according to Stanley Marsh, Jr.

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A sales meeting of Butane Gas Corp. at Little Rock, Ark.

Butane Gas Corp. of Little Rock Plans Five-State Sales Campaign

TO plan the August sales campaign of Butane Gas Corp., Little Rock, Ark., 50 distributors, salesmen, and service men on July 30 came to Little Rock from territories served by the company in Arkansas, Tennessee, Missouri, Kentucky, and Mississippi.

B. T. Harris, manager, spoke at the general morning session. Two group meetings were held during the afternoon. At one, Jack Rogers, chief of service, conducted a school of instruction in installing and maintaining plants. At the other session, F. S. Baird, sales manager, held a sales school.

Butane Gas Corp., in business for two years, is serving approximately 1,000 customers with straight butane, 3300 B.t.u. The gas is delivered by a fleet of 16 trucks.

Five 18,000-gallon storage tanks are located at strategic points: at Little Rock, Forrest City, Blytheville, and Dumas, Ark., and at Memphis, Tenn. The tank at Blytheville was constructed in June, together with a warehouse and a railroad spur. In a little more than 30 days after opening the Blytheville office, that branch sold 50 butane systems.

Peak month of the Butane Gas Corp. in Arkansas was May, when 116 plants were installed.

The company uses an underground system that is buried below the frost line.

■ ■

Okla. Natural Buys Lines to Strengthen Gas Reserve

Strengthening its gas reserves, gathering lines in the Oklahoma City field owned by J. A. S. Wright have been purchased by Oklahoma Natural Gas Co., according to announcement by W. Jennings Young, vice-president. The lines are those of the Canadian Valley Pipe Line Co., Lorinda Gas Corp., Red Oak Pipe Line Co., and Rose Dale Pipe Line Co. Since the inception of these lines, gas has been sold to Oklahoma Natural at two city border locations in Oklahoma City. The company took over operation on August 1.

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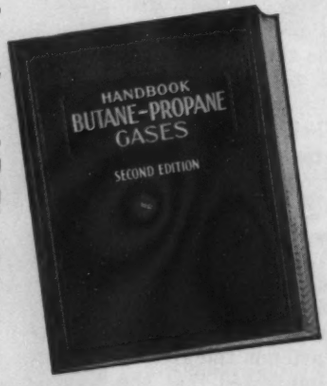

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Memphis Natural Gas Co. Starts Cathodic Protection

MEMPHIS (Tenn.) Natural Gas Co. began work on July 26, on the application of cathodic protection of approximately 15 miles of 18-inch Dresser-coupled high-pressure gas line in the vicinity of Greenville, Miss., and Wilmot, Ark., and extending into northern Louisiana. This work is being done under the engineering supervision of Robert J. J. Kuhn, consulting engineer on electrolysis and corrosion of pipe lines with headquarters in New Orleans.

Recent inspections were made of pipe in a section that was electrically protected two years ago. These inspections were made by executives and engineers of the company including Birger Johnson, president; Larry Johnson, metallurgist; H. C. Wallace, vice-president; M. B. Higman, chief engineer; L. W. Campbell, superintendent of pipe lines, and Mr. Kuhn. The excellent results obtained from the initial installation led to the decision to electrically protect the additional 15 miles.

With the completion of the protection on the present schedule, a total of 66 miles of the 200 miles of 18-inch trunk line will be cathodically protected. Purchased electric power is used on all the protection installations on this line.

■ ■

American Liquid Gas Corp. Opens Butane Stations

Two new butane stations—one in Los Angeles, and the other in Madera, Calif.—are under construction by the American Liquid Gas Corp., Los Angeles.

The Los Angeles station will be the largest of its kind yet built, according to an officer of the company. It will front on two main highways—Alameda Street and the Fourth Street Viaduct. The first 4,000-gallon tank is now in use and business is being carried on during completion of construction. It is expected that work will be finished during September.

Improvements are being made at the Madera station. Two delivery trucks distribute the fuel to homes and business houses. For its increasing truck business, the company maintains 24-hour service with an experienced person in charge of carburetor equipment.

■ ■

Michigan Tightens Rules

Stricter regulation of Michigan's natural gas production is provided in a new law which gives the state supervisor of natural dry gas wells the power to pro-rate the flow and regulate all production operations. The supervisor will act under the direction of the state director of conservation.

■ ■

Gas Service Co. Extends Line

Approximately 7,000 feet of 4-inch line are being laid by The Gas Service Co. at Independence, Mo., to serve Beverly Hills, a new residential subdivision. An additional 7,000 feet of 2-inch main line will be laid to pipe the homes in the district. The company expects to serve 40 or 50 customers as soon as gas is available.

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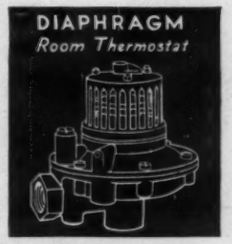

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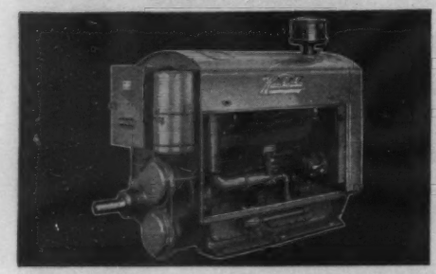

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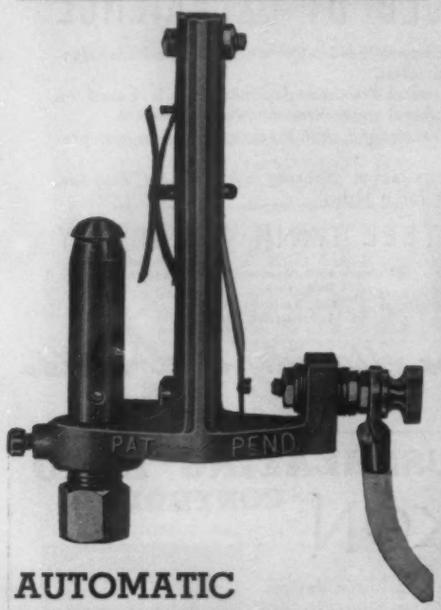

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Well Testing for the Texas Railroad Commission

By A. M. CROWELL
Chief Gas Engineer
Railroad Commission of Texas

A WELL-TESTING program has been undertaken by the engineering department of the Oil and Gas Division of the Texas Railroad Commission that should prove of especial value in establishing the ability of wells to produce gas. The work will include:

1. Experimental determination of back-pressure curves on gas wells producing liquid.
2. Determination of the behavior of light hydrocarbons in high pressure wells under reservoir conditions.

These experiments will be made on the 266 wells located largely in the Gulf Coast and Rio Grande Valley districts, which are producing varying amounts of high-gravity liquid, with a large volume of natural gas.

3. Determination of the solubility of natural gas in crude petroleum.

The Commission is faced with the problem of classifying some 266 wells producing 168,000 gallons of water white, highly volatile fluid each day.

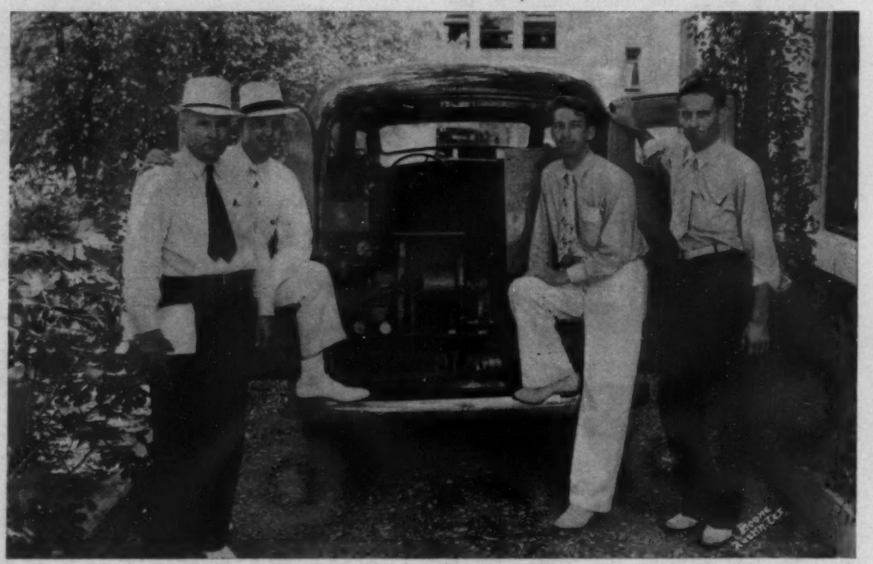
For the efficient conduct of the experiments, the Commission bought a one-half ton, panel-type truck with power take-off, and fitted it with the following equipment:

1. Reel—12,000 ft. capacity—complete with measuring device and hydraulic weight indicator.
2. Dead-Weight Tester—5,000 pounds per square inch range.
3. Apparatus for determining the gasoline content of natural gas.
4. High pressure samplers.
5. Subsurface pressure gage, 6000 lbs. per square inch range, with clock.
6. Recording pressure gages having varied ranges.
7. Specific gravity balance.
8. Critical and non-critical flow gas-testing equipment.
9. Complete set of tools carried in a specially designed tool box.

The first wells being tested are the Sun Oil Company's wells in the Seabreeze Field. They are about 8,000 ft. deep, with 3,200 pounds gage pressure; produce a water white fluid.

The procedure followed on these wells in studying the behavior of the water white fluid under reservoir conditions is as follows:

1. The bottom-hole pressure and temperature is first being determined. Incidental to the determination, the existence of a liquid level in the tubing will be established by the use of the weight indicator.
2. A sample of the fluid from the flow stream will be taken into the high-pressure sampling tube to such a pressure that when the temperature is increased to bottom-hole tem-



The car used by the Texas Railroad Commission for testing wells. From left to right are V. E. Cottingham, director of production; A. M. Crowell, chief gas engineer; Dr. F. V. L. Patten, chemical engineer, and Charles Seecamp, Jr., mechanical engineer.

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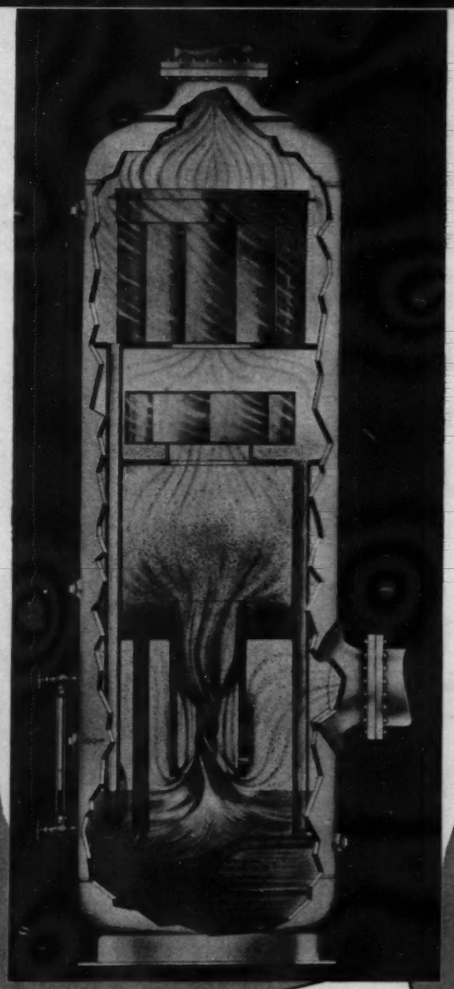

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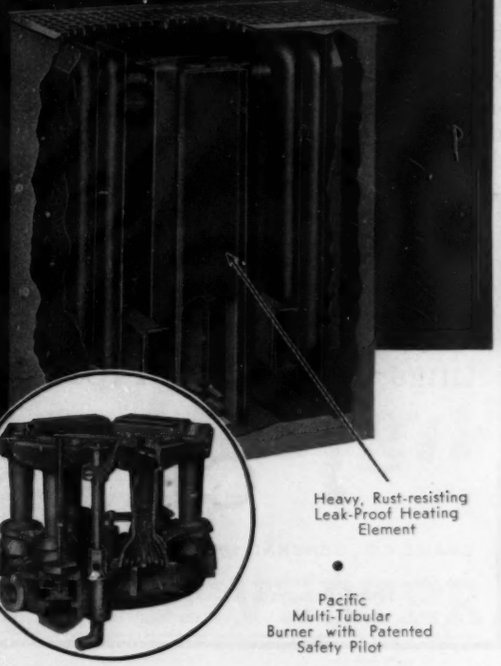

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perature, the pressure will increase to bottom-hole pressure.

The high-pressure sampling tool will be placed in a vertical position, and the temperature will be raised to bottom-hole temperature. Under these conditions, small samples of liquid will be taken off the bottom of the sample tool. These samples will be allowed to expand into a four-liter bottle. As long as liquid samples are being taken and expanded into the four-liter bottle, a constant pressure will be exerted. When a change is made from liquid to gaseous state, a different pressure will be exerted.

By measuring the samples of liquid which can be removed from the bottom of the tube and by drawing off the gas remaining in the tube and passing this gas through the test meter, the liquid gas ratio under bottom-hole conditions can be found.

3. A sample will be taken into the high-pressure sampling tool to such a pressure that when the sample is returned to bottom-hole temperature, the pressure will increase to bottom-hole pressure. The sampling tool is placed in a horizontal position so that there will be a maximum surface of contact between the liquid and gaseous states, and heated to bottom-hole temperature. Under these conditions, the gas will be bled off through the test meter and thence through either a charcoal tube or a condenser surrounded by a dry-ice, ether mixture.

When the pressure in the sampling tube has been reduced to a little above atmospheric pressure, the tube will be placed in a vertical position, and the remaining liquid forced out of the tube and measured. As a result of the data obtained, it will be possible to determine:

(a) The amount of heavier hydrocarbons removed in the gaseous state per unit volume of gas at various times during the course of production of the well.

(b) The total quantity of heavier hydrocarbons will be removed in the gaseous state per unit volume of gas throughout the productive life of the well and by the volume of heavier hydrocarbons which will not be removed from the sand in the gaseous state, and which, therefore, will have to be removed as liquid.

4. A sample of the liquid from the separator of the gas well will be taken into a high-pressure sampling tube and an analytical distillation will be run of it. A sample of gas leaving the separator will also be taken and a specific gravity determination will be made. These latter experiments will be carried out to correlate one well with another.

The car that is used for the tests was designed by A. M. Crowell, chief gas engineer, Dr. F. V. L. Patten, chemical engineer, and Charles Seekemp Jr., mechanical engineer, who are conducting the work in Seabreeze Field.

■ ■

So. Counties Gas Co. Calls All 6% Preferred Stock

Directors of Southern Counties Gas Co. have called for redemption of all the company's outstanding 6 per cent preferred stock on September 30.

There is a total of $2,500,000 par value of this issue outstanding. The stock is called at the redemption price of $105 a share.

Stockholders will be advised in the near future by letter that an accumulated dividend of $1.50 a share, heretofore declared, payable October 15 to stockholders of record September 30, will be paid upon the surrender of their stock certificates on or after September 1. The issue will be removed from trading on the Los Angeles Stock Exchange on that date.

■ ■

Sullivan Gulf Cities Manager

J. S. Sullivan, who for three years has been assistant manager for Gulf Cities Natural Gas Co., Texas City, Texas, has been appointed manager.

CRANEQUIP throughout for years of satisfactory service. Specify Crane Valves—Fittings—Fabricated Pipe—Piping Accessories

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When you enter Hotel Sherman you give the orders. Any day or night, whatever price room you wish you may be sure will be assigned to you cheerfully – a sizeable, comfortable room and your own private bath. The entire staff has only one purpose ... pleasing you !!!

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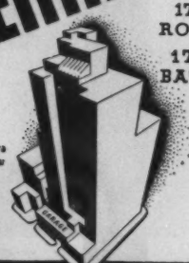

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YOU CAN DRIVE YOUR CAR RIGHT INTO HOTEL SHERMAN ★★★

Include Gas Members in N. Y. Electrical Association

The Electrical Association of New York, Inc., on August 16 voted to include gas interests within the membership and to change the name of the association to the Electrical and Gas Association of New York, Inc. Two of its chief objects are to act as the central organization for and to promote the interests of the gas and electrical industries of the metropolitan New York area.

C. E. Stephens, president of the Electrical Association, stated that the action to include gas interests was the result of the increasing trend for companies to render both gas and electric service and to supply both kinds of appliances.

■ ■

Hall Joins Public Service Co.

A. S. Hall, who has been general superintendent of Peoples Gas Co., Port Arthur, Texas, for several years, has accepted a similar position at Austin, Texas, with Texas Public Service Co., according to an announcement by Vice-President William Lawlor, Jr.

A. G. Smith of the Port Arthur Company succeeds Mr. Hall.

■ ■

Texas Production Changes

Production of dry sweet gas in Texas declined during the first six months of 1937 from 1,268,189,000 cu. ft. to 1,066,862,000 cu. ft., according to the June report of the Railroad Commission of Texas. During the same period utilization of casinghead gas increased from 801,354,000 cu. ft. to about 931,101,000 cu. ft. The Commission in its report expresses gratification at the success of conservation efforts.

■ ■

Hutchinson Meters Gain 10%

A gain of 10 per cent during the year ending June 30, 1937, in Hutchinson, Kan., is reported by The Gas Service Co., which now supplies natural gas to 6,422 meters as against 5,796 a year ago.

Kansas Hearing Brings Out Waste in Otis Field

Five billion cubic feet of natural gas produced in the Otis field in Kansas have been wasted, according to testimony at a hearing of the Kansas Corporation Commission.

A total of 33,600,000,000 cu. ft. has been taken out since discovery of the field in 1930, it was brought out. Purchases have amounted to 28,200,000,000 cu. ft.; drilling fuel has taken 333,000,000 cu. ft.; the remainder has been wasted, it is claimed.

The commission expects to establish an oil-gas ratio in producing combination oil and gas wells.

■ ■

Carbon Plant Permit for Ark.

Permission to construct a carbon black plant in southeast Arkansas has been granted by the Arkansas Board of Conservation to State Senator H. M. Barney, who took the permit on behalf of eastern interests, it is reported.

New Streamline Design

JOHNSON LUMINOUS CONVERTER

ACTUAL SIZE

Greater Efficiency!
Greater Economy!
Greater Dependability!

A new streamline design makes the improved Johnson Luminous Converter even more powerful, efficient and economical to operate. Free and unimpeded air-flow to the point of ignition produces more complete combustion of the gas. Greater heating value from units of fuel consumed is the net result. Improved Bi-Metal Element cuts off main gas supply in the event of pilot failure. This sensational burner is easily installed, practically trouble-free, and so economical to operate that home owners become enthusiastic boosters of gas as a domestic heating fuel. Here is a burner that you can take effectively into the huge market of medium and low income home owners.

Write for New Free Booklet Giving Full Details

JOHNSON GAS APPLIANCE CO.
Cedar Rapids IOWA

Memphis Natural Gas Co. Increases Compressor Station Facilities

TWO new compressor stations are now under construction by Memphis Natural Gas Co. near Wilmot, Ark., and Lula, Miss., and an additional compressor is being installed at the station at Guthrie, La., according to Birger L. Johnson, president.

These additions have necessitated creation of the position of general superintendent of compressing stations operations, Mr. Johnson states, and C. H. Bryan, formerly chief engineer at the compressing station at Benoit, Miss., has been appointed to this post. He has been with the company eight years.

The Wilmot station is located on the 18-inch main line 39 miles north of the Monroe (La.) gas field. This station will contain 3,000 brake horsepower. The units are being manufactured by Clark Brothers Co. and are known as the angle type unit, designed to compress gas from 255 pound suction pressure and 400 pound discharge pressure. There will be a total of five 600-hp. units in this station.

The Lula station is on the comcompany's main line 155 miles north of the Monroe gas fields. It will be equipped with five 340-hp. Worthington 18½ x 20 compressors, totaling 1,700 installed horsepower, designed to operate at 235 pound suction pressure and 370 pound discharge pressure.

At the Guthrie station, Memphis Natural Gas Co. will install one 1,300-hp. twin tandem Worthington compressor, bringing the station's total installed horsepower up to 5,000.

All compressor station construction is under the direct supervision of H. C. Wallace, consulting engineer of New York city, and M. B. Higman, chief engineer of Memphis Natural Gas Co.

■ ■

Four-Day Appliance School Held by Okla. Natural

An appliance service school, held for four days by Oklahoma Natural Gas Co., at Tulsa, Okla., was conducted recently by Dr. F. E. Vandaveer, supervisor of the American Gas Association Testing Laboratories, Cleveland, Ohio. Forty men were selected throughout the property to attend, according to W. Jennings Young, vice-president. Manufacturers of all lines of gas burning equipment displayed their newest models. Manufacturers of control equipment furnished cross section models for demonstration purposes.

Throughout the four days of the school, Dr. Vandaveer explained in detail the work of the Testing Laboratories, then explained the operation of each piece of equipment and the results that should be obtained by its use. He also demonstrated the proper methods to be used in servicing and adjusting the different types of control equipment.

Other speakers were Dr. Sidney Born, University of Tulsa; L. A. Farmer, superintendent of distribution, and John Warden, general sales manager, of Oklahoma Natural Gas Co.; Roy Parker, Carl Dean, and Mildred Clark, home service director. H. A. Newton, sales manager of the Tulsa district, presided, assisted by Miss Clark.

The company plans, Vice-President Young states, to conduct similar schools at intervals throughout the company territory, and may make the general school an annual event.

■ ■

United Gas Corp. Takes Over Operation of Properties

As a step in the simplification of the corporate structure of United Gas Corp., New York, N.Y., announcement has been made that hereafter all United Gas System companies will be operated directly by United Gas Corp.

United Gas Corp. will now engage directly in the distribution and retail sale of natural gas, whereas in the past this was done by the several subsidiary companies comprising the United Gas System. All distribution properties of the United Gas System will now be termed United Gas Corp.

■ ■

Change Chicago Shop Areas

The three shop districts of The Peoples Gas Light and Coke Co., Chicago, were changed, effective August 1, to bring each shop more closely to the center of population in the district and to permit a simpler geographic division of territory. The districts are known as North, Central, and South Districts.

FOR SALE
Any portion of 25 miles
16 inch O. D. plain end pipe
¼ to ⅜ inch wall
EXCELLENT CONDITION
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Expert service. Prompt attention.
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LESTER L. SARGENT
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The Goodman Stopper
The Reliable Shut-off for Street Mains
Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.
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Write for attractive Dealer proposition
ELECTROGAS FURNACE & MANUFACTURING CO.
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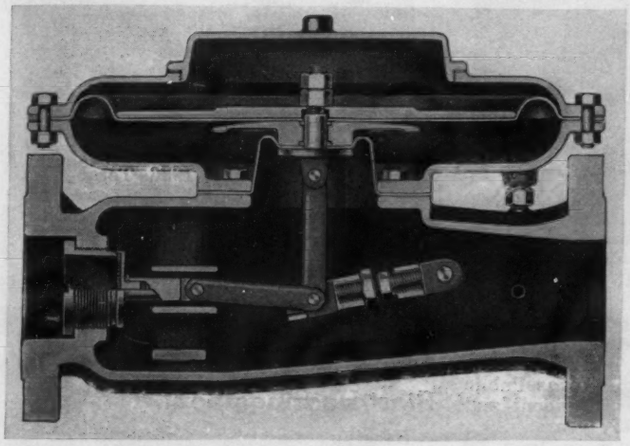
Industrial
GAS CONTROL



Cross-Section View — REYNOLDS Dead Weight — Single Balanced Valve, Toggle Type Regulator

★ Greater capacity . . . increased range . . . quicker response . . . these are decided advantages of Reynolds Improved Gas Regulators for industrial control. They assure smooth, constant outlet pressure and volume even though inlet pressure and volume are irregular. Manufactured in single or double valve construction, Reynolds Industrial Regulators are proved by performance in factory tests and on installations throughout the world.

REYNOLDS PRODUCTS

High Pressure Service House Regulators—Straight Lever Type—Models 0-10-20 series; Toggle Lever Type—Model 30 series.

Low Pressure Service or Appliance Regulators.

District Station Regulators, Single or Double Valve—Auxiliary Bowl and Automatic Loading Device Optional.

High Pressure Line Regulators—Pilot Loaded—Pilot Controlled.

Toggle Type Regulators—Single Valve, Double Valve, Triple Outlet.

Seals—Dead Weight or Mercury. Back Pressure Valves . Automatic Quick Closing Anti-Vacuum Valves . Automatic Shut Off Valves . Lever Operated Valves . Louver Operated Device . Atmospheric Regulators . Vacuum Regulators.

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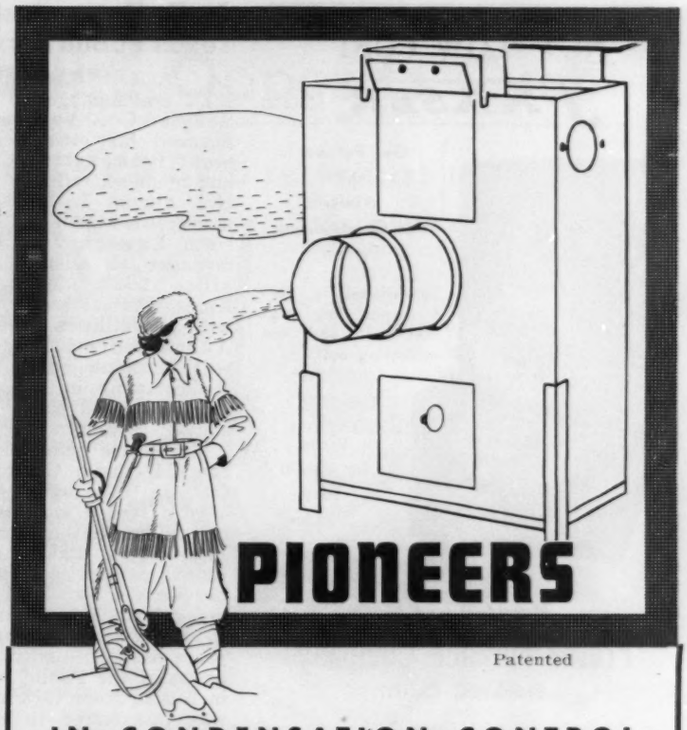
REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892



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IN CONDENSATION CONTROL
HOME HEATING EFFICIENCY

Realizing that thousands of dollars are annually needlessly wasted through escape of preheated air and chimney corrosion, Condensation Engineers developed the Howle Heat Extractor.

The Howle Heat Extractor traps the acid bearing corrosive moisture laden gases, before they strike cold chimney surfaces and condense. Only "heatless" dry air is permitted to pass off up the stack, thus entirely eliminating early chimney repairs and promoting fuel economy.

The largest gas utility companies in the world and heating engineers everywhere have acknowledged the value of the Howle Heat Extractor in increasing the efficiency of heating plants by redirecting preheated air into the basement, raising temperatures from 10° to 20° F. Condensation Engineering Corporation can prove to you how to increase the efficiency of home heating plants at no additional fuel expense. Write them for information and prices on an entire line of condensation equipment. It will be furnished free on request.

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Helena Bldg., King St., London, Ontario

VITROLINER
the permanent Chimney Liner
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CONDENSATION ENGINEERING CORPORATION

TELEPHONE MONROE 1031

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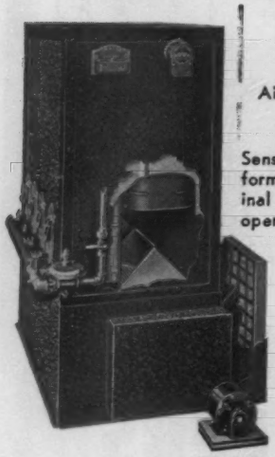
NEW LOW COST

FRASER



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Sensational in performance, low original cost and low operating cost.

Write for details today.

Manufactured by

Fraser Furnace Company

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Distributed by

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For Exposed Pipes Also

The pipes on this cooling tower exposed to continuous spray are scaled with dried mist, but under the scale is a single application of NO-OX-ID. It has been there for years, giving the steel 100% protection. Only NO-OX-ID combines the chemical and mechanical advantages that give complete long time protection. For buried or exposed pipe lines, service pipe, gas holders, purifiers and accessory equipment, there is a suitable consistency of NO-OX-ID to stop all loss of metal. Dearborn Service Men are readily available. Write for data and recommendations.

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A. T. Knies Resigns From Texas Public Service Co.

A. T. KNIES, vice-president and general manager of the Texas Public Service Co., Austin, Texas, has announced his retirement from active management, effective August 1. He is succeeded by William Lawlor, Jr., manager at Austin since 1934. Mr. Knies, who has been with gas utilities in Austin since 1913, will continue with the company in an advisory and consulting capacity.

W. LAWLOR

Mr. Knies joined the old Austin Gas Co. in 1913, after having served as manager of the gas properties of the Palestine Power and Light Co. at Palestine, Texas. He continued his service with the Texas Public Service Co., and was vice-president and general manager for many years.

Mr. Lawlor has had more than 30 years of service with the various enterprises of the Public Service Co. He was in Austin from 1913 until 1927, when he was transferred to Beaumont as local manager of the irrigation interests of the company. In 1934 he was made manager at Austin.

■ ■

Waukesha Appoints Kilpatrick Head of Gas Power Division

To head its newly formed Gas Power Division, Waukesha Motor Co. has appointed Harry V. Kilpatrick, who has been with the company for 16 years and is a veteran of the sales staff.

Mr. Kilpatrick introduced power units to two new uses—portable mills and pea viners. He also extended the use of Waukesha engines for gravel pit machinery and for isolated and stationary power installations—generators, pumps, etc., and he is widely known throughout the Middle West.

■ ■

Oklahoma Natural to Improve System in Ardmore

Extensions will be made by Oklahoma Natural Gas Co. to its distribution system in Ardmore, Okla., and lines will be rearranged for improvement of service, according to W. Jennings Young, vice-president. The details of the program have not yet been worked out.

The improvements were assured following a special referendum on July 20 in which the city voted to grant the company a 25-year franchise. The former franchise expired some time ago.

■ ■

Cromwell Pacific Coast Head

Alexander Cromwell has been elected a vice-president of Johns-Manville Products Corp. and placed in charge of manufacturing activities on the Pacific Coast, according to announcement by Lewis H. Brown, president of Johns-Manville Corp. Mr. Cromwell will supervise the plants at Lompoc, Pittsburg, Redwood City, Los Angeles, and Watson, Calif.

Natural Gas Revenues in May 12% Ahead of 1936

Revenues of natural gas utilities were 12 per cent greater in May, 1937, than in May, 1936, according to statistics compiled by the American Gas Association. For May of this year revenues totaled $34,138,400.

Sales of natural gas in May gained 14.3 per cent over the corresponding month last year, reaching a total of 105,168,000,000 cu. ft. Natural gas sales for domestic purposes showed an increase of 7 per cent for the month, while industrial sales gained 18.1 per cent.

Manufactured gas revenue increased 2.2 per cent over May, 1936. Total sales were 6.4 per cent ahead of a year ago. Manufactured gas sales for domestic uses were 2.4 per cent below May, 1936, while sales for house heating increased 28.3 per cent. Industrial and commercial uses increased 16.9 per cent.

■ ■

Pennsylvania Commission to Start Hearings Sept. 1

Hearings will start on September 1 before the Pennsylvania Public Utility Commission on rates and charges of natural gas companies in the state. The following schedule has been announced for September by Joseph P. Sheridan, secretary:

Ridgway, September 1: St. Marys Natural Gas Co.; Ridgway Natural Gas Co.; Clarion Natural Gas Co.; James City Gas Co.

Bradford, September 2: United Natural Gas Co.; Crosby Gas Co.; Citizens Gas Co.; Finneasy & Co.

Bradford, September 3: Smethport Natural Gas Co.; North Penn Gas Co.; Dempseytown Gas Co.; Alum Rock Gas Co.; Allegany Gas Co.

Pittsburgh, September 16: Manufacturers' Light & Heat Co.; Union Heat and Light Co.; Manufacturers' Gas Co.

Pittsburgh, September 17, Peoples Natural Gas Co.; T. W. Phillips Gas & Oil Co.; Acme Natural Gas Co.; Beaver-Butler Gas Co.

It is expected that hearings will be held for 104 companies.

■ ■

Ruston Field Absorption Plant Built by Arkansas-Louisiana

An absorption plant with a capacity of 30,000,000 cu. ft. a day is under construction by the Arkansas Louisiana Gas Co. in the Ruston gas field. It will serve the Bienville and Lincoln parish gas wells.

Five producing wells in the area at present are being stripped by means of individual separators before the gas is turned into the commercial line. A sixth well is now nearing pay levels in Bienville parish, while the seventh and eighth wells are under way in Lincoln parish. A ninth test is scheduled.

■ ■

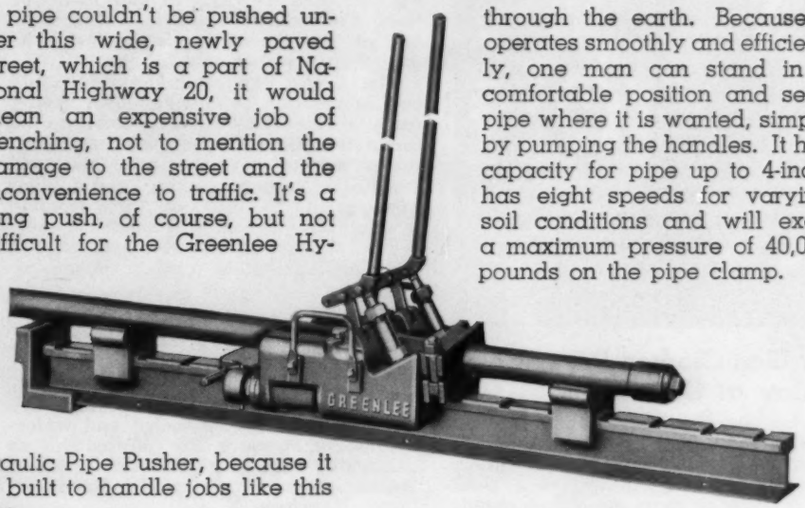
Death Takes Henry Brundage

Henry M. Brundage, at one time vice-president of Consolidated Gas Co. of New York, and a leader in the establishment of a uniform classification of accounts for utilities, died in July in Port Chester, N. Y. He was with Consolidated Gas Co. for 40 years until his retirement in 1934. He was very active in the Accounting Section of the American Gas Association.

It's a Long Push to the Opposite Curb

...But the GREENLEE is equal to the Job

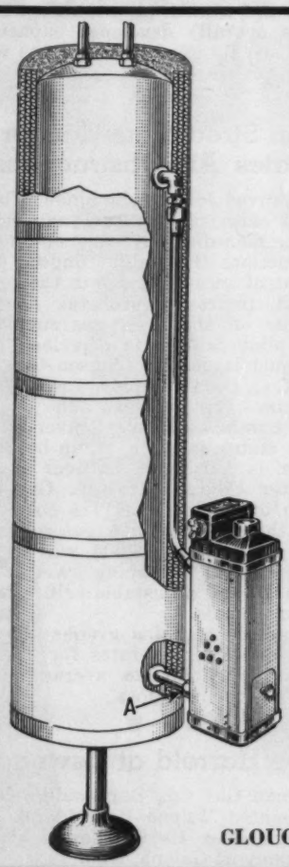
If pipe couldn't be pushed under this wide, newly paved street, which is a part of National Highway 20, it would mean an expensive job of trenching, not to mention the damage to the street and the inconvenience to traffic. It's a long push, of course, but not difficult for the Greenlee Hydraulic Pipe Pusher, because it is built to handle jobs like this one.



The Greenlee is a compact tool that is designed to use hydraulic pressure to force the pipe through the earth. Because it operates smoothly and efficiently, one man can stand in a comfortable position and send pipe where it is wanted, simply by pumping the handles. It has capacity for pipe up to 4-inch, has eight speeds for varying soil conditions and will exert a maximum pressure of 40,000 pounds on the pipe clamp.

Investigate this money-saving tool. Write for full information.

GREENLEE TOOL CO., 1700 COLUMBIA AVE., ROCKFORD, ILLINOIS



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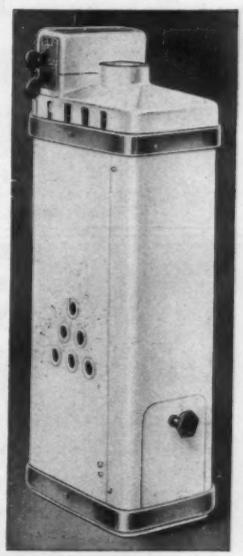
The HOTZONE Conversion Heater is your answer. Without the expense of a complete, new boiler unit—automatic hot water is now within the reach of every home in your territory.

This heater is connected to their present storage tank—which is easily insulated at a very small cost.

It provides completely automatic hot water service—is highly efficient—and is an excellent stimulator for sale of other automatic gas appliances.

Write TODAY for complete details on HOTZONE Gas Water Heaters—a type and size to fit every domestic requirement!



IN TWO SIZES

WELSBACH COMPANY

GLOUCESTER CITY, N. J. — BRANCHES — CHICAGO, SAN FRANCISCO

Thor Gas Clothes Dryer on Display at Cleveland

Hurley Machine Co., maker of Thor washers and ironers, is placing on the market a low-cost gas-heated clothes dryer than can be installed in a basement or laundry room almost as readily as a gas plate, and can be as conveniently transported as a piece of household furniture, according to the company announcement.

Twenty-four swinging drying rods offer the equivalent of 96 ft. of clothes line, yet take up less floor space than a kitchen table. Clothes can be hung up or removed from the rods in less than one-half the time required when clothes line and pins are used, the company states.

In the Thor dryer, which measures 2 ft. wide by 4 ft. 4 in. long, a complete washing can be dried in two hours or less. The rods, in two sets, swing in or out at convenient levels and can be loaded from either side.

The dryer, the manufacturer points out, in addition to cutting down drying time, enables the laundry work to be completed regardless of weather, eliminates tearing of clothes with pins, and facilitates proper stacking and folding of garments to speed up their ironing.

The Thor gas-heated clothes dryer will be on display at the Hotel Statler in Cleveland during the A. G. A. convention.

■ ■

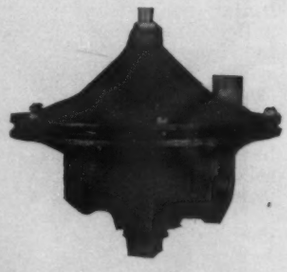
Vertical Compressor Data Issued by Worthington

Data on a line of vertical single-cylinder single-stage air-cooled and water-cooled compressors are offered in an illustrated eight-page bulletin issued by Worthington Pump and Machinery Corp., Harrison, N. J.

Sectional views show features of construction; detailed specifications of the feather-type valves and other principal elements, rating tables, and dimension tables, are included.

Thermo Control Makes Small High Capacity Regulator

A LOW-pressure regulator of high capacity but small size—5 inch and 6 inch overall dimensions—to use on appliances having a limited space for installation, has been perfected by H - M Thermo Control Co., 814 East 108th St., Los Angeles, Calif. It comes in ½-inch (5 inch overall) and ¾ inch (6 inch overall) pipe sizes.



According to the manufacturer, the appliances are now subject to pressures up to 10.5 inches of water column pressure. It has consequently been necessary to adapt a new listing test requirement to the appliance tests. This test is based on a minimum outlet through-put for the pipe size of the regulator and the minimum outlet pressure.

The H-M Thermo Control regulator in the ½ inch size (5 inches overall) set at 7 inches water column inlet pressure, 2.5 inches outlet pressure, 30 cu. ft. of gas through-put setting with a 3 inch pressure drop, gives the capacity of 73,500 B.t.u. of standard gas. By changing the through-put setting the capacity is increased to 95,000 B.t.u. at .5 inch pressure drop and 120,000 B.t.u. at .83 inch pressure drop. Under this same rigid test the ¾ inch pipe size regulator (6 inches overall) developed capacities up to 185,000 B.t.u. of standard gas with a .75 inch pressure drop.

■ ■

Johnson Streamline Converter Eliminates Air Obstructions

The improved Johnson Luminous Flame Converter with new streamline design, which, the manufacturer says, eliminates all obstructions that might impede easy movement of secondary air to the ports, and with improved bi-metal element which cuts off the main gas supply in case of pilot failure, is described in a bulletin just issued by Johnson Gas Appliance Co., Cedar Rapids, Iowa.

Minimum gas consumption of the Johnson Luminous Flame Converter, the company states, is 80 cu. ft. an hour and maximum is 250 cu. ft. an hour at 3½-inch water column pressure. Gas consumption of pilot is only 1½ cu. ft. an hour. In the average home, gas consumption of burner is 160,000 cu. ft. per heating season. Shipping weight of burner head and adjustable orifice tee is only four pounds.

The bulletin contains graphs showing that the converter operates for 24.2 c.f. per degree day for an average house of 70,000 B.t.u. heat loss.

■ ■

Wayne Harreld at Oswego

American Gas Co., Bartlesville, Okla., has appointed Wayne Harreld manager at Oswego, Kan. He was formerly with the company at Galena, Kan.

Cost Less to Use . . . Investigate "NEW IDEAL"

PIPE CLEANING MACHINES

4 Sizes and Several Models

You can easily clean a million feet of pipe. Also complete line of Duo-Hydraulic Pipe Straighteners; New Ideal De-Denters and Tri-Pod Hoists. See 1937 Composite Catalog or write for our complete catalog.

The NEW DEAL SPECIALTY CO.
—INC.—
OKMULGEE, OKLA., U.S.A.

Export: LUCEY EXPORT CORP., New York and London

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THERMO ELECTRIC SAFETY CONTROL FOR GAS BURNING APPLIANCES

BOILERS ★ FURNACES ★ CONV. BURNERS ★ SPACE HEATERS ★ UNIT HEATERS ★ AIR CONDITIONERS OVENS ★ RANGES ★ WATER HEATERS, ETC.

GAS VALVE SERIES 500

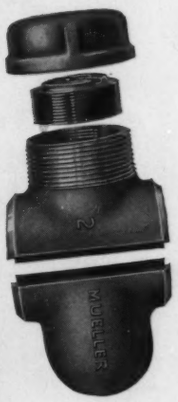
ELECTRIC SWITCH SERIES 600

MILWAUKEE GAS SPECIALTY CO.
MILWAUKEE ★ WISCONSIN

TROUBLE HERE

how many users will suffer?

NONE if you use MUELLER PRESSURE CONTROL EQUIPMENT



Weld Type for Steel Pipe.

Mechanical Joint Type for Steel or Cast Iron Pipe.

WHEN it is necessary to make lateral or dead-end extensions, tie-ins or any repair, Mueller Pressure Control Fittings will permit them to be made with positive shut-off . . . and, without shut-down.

As far as service is concerned, users won't even know a repair is being made. When trouble arises, Mueller Pressure Control Fittings are installed at the exact location desired. Service is not interrupted whatever. And, the cost is LESS than by the shut-down method.

Mueller Pressure Control Fittings and Equipment have proved ENTIRELY satisfactory under extreme conditions. Keep your company good will safe. And, always be able to say, "Not one user will suffer." Take care of trouble the Mueller way—it costs LESS. Write for complete information, today.

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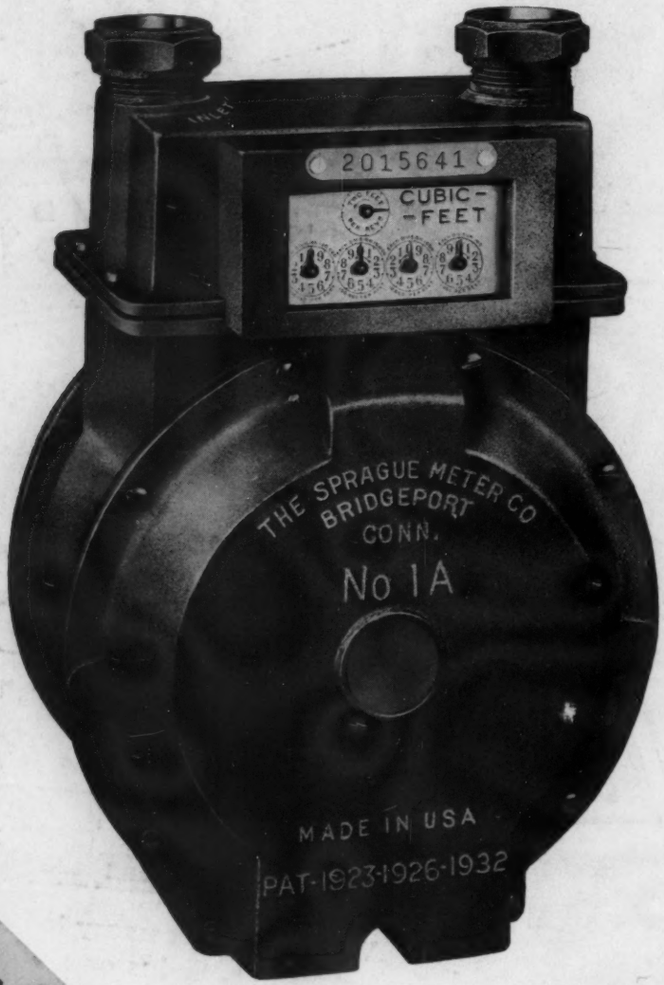

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